This should be applied when the flies first emerge and repeated every ten days while the flies are in the field; and it must be renewed after each rain. The author of the bulletin has not had an opportunity to try arsenate of lead, without sweetening, on a block of infected trees; but in the case of a commercial orchard he would place considerable confidence in the effectiveness of this remedy. The main object in any case is to keep poison on the trees during the time of principal emergence of the flies, so that they can get it before the eggs are mature and ready to be laid.

Picking up windfalls may rid the orchard of the pest if consistently followed up, but it is a laborious process. Even the destruction of drops by hogs in sometimes ineffective.

Several experiments have shown that the flies are able to emerge when buried deeply in the soil, hence plowing in the fall or spring cannot be counted on for a remedy; and covering the infested fruit in pits is not recommended.

Citronella oil, kerosene, and quassia are apparently worthless with these flies.

Cold-storage stops the development of the larvae and may kill them if long continued.

In the experiments described in this bulletin, larvae failed to pupate in dry soil, their bodies shriveling and dying within the puparium; hence cultivation may prove of value by keeping a dust mulch on the surface of the soil.

BULLETIN 325—CHERRY FRUIT-FLIES AND HOW TO CONTROL THEM

The common species of cherry fruit-fly, *Rhagoletis cingulata*, has been well known for a number of years. Early in the season of 1912 it was discovered that another species must be dealt with, *R. fausta*, which had formerly not been recognized as a cherry pest in the East. The larvae of the latter species are much yellower than those of the common cherry fly or the apple maggot, and the puparia are so much darker that they can be easily distinguished from those of the other insects. Although the indications are that the common cherry fly is a rather general feeder, attacking all varieties of cherries and sometimes plums, thus far *R. fausta* has been found only in sour cherries.

The flies emerge about June 10 in the region around Ithaca, New York. They mate when five or six days old and begin ovipositing about two weeks after they emerge. The eggs are inserted into the fruit by means of a sharp ovipositor, and hatch in approximately two to four days. The number of eggs produced by each female is probably three or four hundred. In 1912 the first tiny larvae were found on June 30, about the time when the early varieties of cherries were being marketed. The infested fruit does not fall from the tree, but soon decays. The presence of the larvae can often be recognized by the fruit's having a small hole near the upper side, probably cut by the maggot for air. When the larvae are mature—about the middle of July—they fall to the ground and bury themselves about one inch. Here they change into pupae and lie dormant until the next season.

Heretofore, cherry fruit-flies have been considered among the most serious of orchard pests to control. Poisoned baits have been found so satisfactory in dealing with the closely related apple maggots that the same mixture was used against the cherry flies, as follows:

Arsenate of lead.......	3 ounces or 5 pounds
Cheap molasses........	1 pint or 3 gallons
Water....	4 gallons or 100 gallons

This mixture was applied to the trees with a hand syringe holding just a pint, which was found to be enough to sprinkle a tree of moderate size. Two treatments were put on—the first June 10, the second June 24.

The fruit of the unsprayed trees showed an infestation of fully one third of the crop; the fruit of the sprayed trees was remarkably clean, only about one sixth of one per cent being wormy. The sprayed fruit showed also a noticeable lack of brown-rot and of curculio injury.

It appears that arsenate of lead, without sweetening, may possibly control cherry flies. Fruit free from the pest resulted in one orchard from merely making two applications at codling-moth strength (4-100) during the period when the flies were emerging.

CIRCULAR NO. 14—WORKING PLANS OF CORNELL POULTRY-HOUSES

This circular contains working plans of five Cornell poultry-houses, the Cornell trap-nest, a feed hopper, a broody coop, a plain nest, and a feed-and-water car. Each house is illustrated by three plans—the floor, or ground, plan, the side elevation, or cross-section plan, and the front elevation. These plans show the sizes and number of timbers used and the arrangement of the interior fixtures.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Residents of New York State may be placed on the mailing list by indicating their desire to receive bulletins on one or more of the following subjects: Apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, New York.

Bulletins:

219. Diseases of ginseng.
226. An apple orchard survey of Wayne county.
229. An apple orchard survey of Orleans county.
260. American varieties of beans.
266. The black-rot of the grape and its control.
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it.
283. The control of insect pests and plant diseases.
285. The cause of "apoplexy" in winter-fed lambs.
286. The snow-white linden moth.
289. Lime-sulfur as a summer spray.
291. The apple red-bugs.
292. Cauliflower and brussels sprouts on Long Island.
295. An agricultural survey of Tompkins county.
297. Studies of variation in plants.
298. The packing of apples in boxes.
302. Notes from the agricultural survey in Tompkins county.
303. The cell content of milk.
305. The cause of "apoplexy" in winter-fed lambs.
307. An apple orchard survey of Ontario county.
309. The production of "hothouse" lambs.
310. Soy beans as a supplementary silage crop.
311. The fruit-tree leaf-roller.
312. Germination of seed as affected by sulfuric acid treatment.
313. The production of new and improved varieties of timothy.
314. Cooperative tests of corn varieties.
316. Frosts in New York.
317. Further experiments on the economic value of root crops for New York.
318. Constitutional vigor in poultry.
320. Sweet pea studies—III. Culture of the sweet pea.
321. Computing rations for farm animals.
322. The larch case-bearer.
323. A study of feeding standards for milk production.
324. A study of the biology of the apple maggot, together with an investigation of methods of control.
325. Cherry fruit-flies and how to control them.
327. Methods of chick-feeding (in press).
328. Hop mildew (in press).

Circulars:

1. Testing the germination of seed corn.
3. Some essentials in cheese-making.
4. Soil drainage and fertility.
8. The elm leaf-beetle.
9. Orange hawkweed or paint-brush.
12. The chemical analysis of soil.
13. Propagation of starter for butter-making and cheese-making.
14. Working plans of Cornell poultry-houses.

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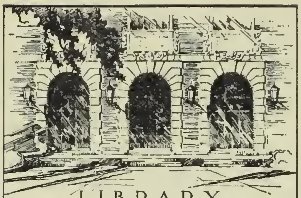

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
L. H. BAILEY, Director

VOL. I ITHACA, N. Y., OCTOBER, 1911 NO. 1

This "Announcer" is to be published for the purpose of acquainting the people of the State with the kinds of work that are in progress by the State College of Agriculture. It will announce the investigation, the pieces of extension enterprises on farms and with the people, the forthcoming bulletins, the reading-courses, the local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

It is specially desired to give the people the gist of the Experiment Station bulletins, and thereby make it possible to reduce the regular mailing-lists and save expense of publication at the same time that the public may be served more effectively. Bulletins of general interest will be sent to the entire mailing-list as heretofore; but the mailing-lists are now to be classified, and bulletins on special or local subjects will be mailed regularly only to those names that are on the special lists for the given subjects. For example, if the College has a list of grape-growers, the bulletins on grapes will be sent only to this list. All these special bulletins will be briefly reviewed or summarized in advance in the "Announcer"; and any person not on the special list who wishes to secure a copy of the bulletin may secure it by writing for it. It is probable that the abstracts or conclusions published in the "Announcer" will give sufficient information on the results of the experiments to meet the needs of the greater number of readers.

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GENERAL ANNOUNCEMENTS

EXTENSION SCHOOLS IN AGRICULTURE.

In every county of the State there is a large number of persons anxious to study agriculture, but who cannot afford either the time or money to leave home. The New York State College of Agriculture is prepared, for the coming year, to meet this demand, to a limited extent, by placing a few extension schools in different parts of the State. In these schools definite instruction with special reference to the immediate locality concerned, will be given. Last year three such schools proved their usefulness.

These schools are of one to two weeks' duration, conducted by members of the College staff, and are similar in character to the Cornell Winter-Courses. Cooperation on the part of the people is necessary for their success. Since the College has already received a number of requests for these schools this coming year and since their number will be limited, every society interested in securing such a school for its section or county should make application at once.

SOIL WORK.

The Department of Soil Technology has undertaken an extensive study of the important soil formations of the State with the view of ultimately determining the best means for their improvement. This includes thorough chemical analysis of carefully collected samples of each soil. In view of the investigations now in progress and the doubtful value of analysis of promiscuous samples representing individual farms, it is the policy of the College not to make analyses of samples sent by other than representatives of the College, for the purpose of determining their fertilizer needs.

The survey of the soils of the State and their representation on maps and description in an accompanying report is in progress, and the seventeenth area in the State is now being traversed. By the beginning of winter the field work in Jefferson County will have been completed. About 18 months are required to prepare the map and report and have them printed for distribution. It is the policy to make a county the unit in this survey.

The Department is prepared to give a limited amount of assistance to farmers who desire to drain their land. A man will be supplied to go over the proposition, do such engineering work as may be necessary and submit a map of the proposed system, providing the traveling and subsistence of the man are paid by the person receiving assistance.

The question of lime for the land is receiving much attention. A bulletin on the subject is in preparation. We shall be glad to have as many persons as possible from all parts of the State who have used lime communicate with us in order that a better idea of the range and extent of its benefit may be determined.

Results of experiments not yet published in which drainage water from the soils in the large concrete tanks was collected and analysed, show that the loss of lime from the soil is largely determined by the loss of nitrates, and that any treatment which diminishes loss of nitrates effects a corresponding decrease in the loss of lime. A soil continually covered with a crop loses less of both nitrogen and lime than does a bare soil. Summer fallow is particularly wasteful of both nitrogen and lime in a humid region.

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DEMONSTRATION ON FARMS.

A series of cooperative demonstrations on farms is to be undertaken as a part of the extension work of the Department of Farm Practice and Farm Crops. The plans are not yet perfected, but the Department is ready to receive correspondence from those who may desire to cooperate. It is important that all the work shall be organized by mid-winter.

The Department expects to continue the experiments with various types and varieties of corn, to determine their adaptability to various sections of the State; and also the experiments in the renovation of pastures. It is desired to ascertain the various kinds of leguminous crops that can be successfully grown under different conditions in the State. An effort will be made to extend the growing of the more promising ones. Other lines of work will be projected.

HOP MILDEW (Department of Plant Pathology).

In 1910 the hop mildew, well known and often very destructive in England, appeared in epidemic form in certain parts of the hop district. This year the disease has been more widespread and more destructive. Many lots failed to "hop out" and could not be picked.

The College was not informed of the outbreak in 1910 until the damage was mostly done. A few experiments in control were tried at Waterville, Oneida County, which gave indications of the effectiveness of a dust spray. This year more extensive experiments both at Waterville and at Middleburg, have been conducted. Various dust and liquid sprays were tried. While several mixtures gave good results, growers are almost unanimously in favor of the dust spray. This is because of the method of training the hops (on poles) as well as the cheapness of the material and rapidity with which it can be applied.

Of the dry materials tried, the substance which has proved most effective and most practicable is the flowers of sulphur. Growers say that they have saved their yards by making three to six applications. Some yards were lost on account of inability to [illegible] the dry spray.

THE APPLE-MAGGOT (Department of Entomology).

Observations the past two seasons have resulted in several important discoveries which, it is hoped, will lead to the control of this serious fruit pest. An extended technical paper is in preparation. The observations are by J. F. Illingworth.

There are two broods in a season. The first brood flies emerge from the latter part of June to Aug. 1st. Eggs hatch in 2 to 6 days, according to weather conditions. Larvae begin to emerge about July 16th. Pupae formed inside puparia, two days after entering soil. Flies live six weeks in confinement.

The second brood flies begin to appear Sept. 1st; by Sept. 15th, abundant.

Control.

From the day the flies emerge, they feed, sipping continuously from the surface of the leaves and fruit. Consequently they are easily poisoned. Careful dissections of the flies show that the ovaries contain only the germaria at first, and the eggs are about 3 weeks in developing. We have all of this time in which to feed the flies poison, before they begin their work of fruit destruction. Experiments were first made with arsenate of lead, sweetened with corn syrup; the flies feed greedily upon it, but are very slow in dying, some living even for 24 hours. A soluble poison bait was then prepared as follows, and it proved to be very effective:

Water	45 parts
Corn syrup	4 "
Potass. Arsenate	1 part

About a pint of this was sprayed on the lower branches of a 20-year-old tree. The burning from the soluble arsenate was of little consequence, for so few leaves were sprayed, and the destruction of the flies was apparently perfect, killing them in less than 30 minutes after the first sip.

Recent observations in orchards indicate that thorough spraying with arsenate of lead for codlin-moth, particularly the second spraying applied about 3 weeks after the petals fall,—say the latter part of June,—will control the apple-maggot. Two commercial orchards, near Ithaca, that are thoroughly sprayed each year, are free from this pest, while the adjoining, neglected orchards are badly infested.

Drying Fatal to Larvae. Our experiments indicate that the maggots must enter [illegible] or remain to pupate inside the decayed fruit, otherwise they dry up within the puparia after a few days. Those that form puparia in the bottom of packing cases in all instances observed soon dry and become empty shells. This same fate also awaits larvae that are compelled to enter dry soil to pupate. As a result of these observations we think that cultivation whereby a dust mulch is maintained would be of value.

PUBLICATIONS

ABSTRACT OF BULLETIN NO. 304.

Substitutes for Skimmed Milk in Raising Calves, with Supplement Showing Later Development.

This Bulletin was first published in July, 1909. It has received much favorable comment and has been asked for so often since it went out of print that a new edition has been authorized.

This Bulletin is important at the present time because our dairy herds are not being improved as fast as they should be. One reason for this is that most of our farmers who ship their milk to New York and the other large cities are not paying as much attention to the raising of their heifer calves as they ought. They have no skimmed milk and do not think it possible to raise calves without skimmed milk. Hence, they are depending on keeping up their herds by purchase. They should be breeding up their own herds and selecting the best of their heifers for the maintenance of the herd.

In this bulletin, the writers show that very good calves can be raised without milk of any kind after the calf is seven to eight weeks of age and with a very small quantity of milk in the ration from the second to the eighth week. If the calf is as valuable as it ought to be, no better return can be made from the milk, at the present prices for milk at the shipping station, than by feeding it direct to the calf from the mother during the first two weeks of the life of the calf, then gradually introducing a gruel made from some good calf food. The bulletin shows clearly that good calves can be raised with this kind of care and treatment, as is evident from the following quotation: "Calves fed on one of the substitutes made an average daily gain of 1¼ pounds at a cost of 8½c per pound of gain."

The experiments from which the data for the bulletin were drawn extended over two winters with two crops of calves. The crop of calves each winter was divided into groups, each group receiving a certain milk substitute. Careful weights were taken of the calves at regular intervals so that a good study of the effects of the different foods could be made.

ABSTRACT OF BULLETIN NO. 305.

The Cause of "Apoplexy" in Winter-fed Lambs.

In the western part of New York State, notably around Batavia, a large number of lambs have been fed each winter. These lambs are for the most part bought on the Chicago market, shipped east, fed until they reach a weight near one hundred pounds, when they are shipped out again for slaughter.

This industry enables the farmers of this section to utilize much of the roughage on their farms which in itself has little market value, but which finds a ready market when turned into mutton. The farmers also get a large amount of manure to keep up the fertility of their farms and the industry is carried on at a time of year when other labor on the farm is at its lowest point.

For many years, the farmers who have been feeding these lambs have lost many of them from a disease resembling apoplexy in humans. This disease would attack the best and largest lambs, causing death in a very few minutes. The feeders have felt that one of the causes of this disease was the feeding of too much protein in the ration.

Two investigations have been conducted to get some light on the cause of "apoplexy," and at the same time to collect data on the value of wide versus narrow rations, and the value of succulence in the ration. The first investigation was conducted in the winter of 1909-10 at the farm of C. E. Shepard, Batavia, New York. The results of this investigation have been fully presented in Bulletin 285.

In Bulletin 305 the results of the continuation of the investigation at the Cornell University Agricultural Experiment Station have been written up.

The results of both investigations show that more cases of "apoplexy" in these winter-fed lambs are caused by sudden overfeeding than by anything else. The amount of protein does not seem to affect the lambs in any way, cases of "apoplexy" appearing as often among the lambs fed a wide ration as among those receiving a rather narrow ration.

The results show definitely that succulence in the ration is very desirable and silage or roots should be fed if obtainable. As to the gains from the different rations, a direct quotation from the bulletin will show what was considered the best ration: "The most economical ration was that with a nutritive ratio of 1:5.3, with silage for succulence. This ration produced the largest gains at the lowest cost per pound of gain."

BULLETIN NO. 306.

The Classification of the Peony.

This is the fourth bulletin in the peony series, being the result of the joint studies of the Department of Horticulture and the American Peony Society. This bulletin has been supervised by Professor John Craig and prepared by Professor L. D. Batchelor, assisted by Messrs. B. H. Farr and Joseph Dauphin, peony specialists, representing the Peony Society. The bulletin contains a classification of the peonies in the Cornell plots and a careful description of all varieties thus far identified. A list of corrected names and descriptions of varieties previously described is included. The publication reports the results of the tests of the very large cooperative collection of peonies growing on the Cornell grounds.

The collection originally was supposed to contain 1933 varieties but the work, which is rapidly approaching completion after seven years' study, gives indication that there are less than 500 distinct varieties. These have been described in the four reports and the list of synonyms has been prepared with great care. Studies were also made on the grounds of several peony specialists and the descriptions of a few additional varieties thus obtained are included in the bulletin. Practically every variety of the peony has been fully described but for the information of intending planters lists are given of the best varieties for cut-flowers and for landscape effect.

A permanent collection of all the distinct varieties under their correct names will be maintained on the grounds of the Horticultural Department where it may be inspected by anyone interested in peonies.

AVAILABLE BULLETINS.

The following Bulletins of the Cornell University Agricultural Experiment Station are available for distribution to those residents of New York State who may desire them.

139. Third Report upon Japanese Plums.
141. Powdered Soap as a Cause of Death among Swill-Fed Hogs.
154. Table for Computing Rations for Farm Animals.
168. Studies and Illustrations of Mushrooms: II.
189. Oswego Strawberries.
190. Three Unusual Strawberry Pests and a Green-house Pest.
207. Pink Rot an Attendant of Apple Scab.
219. Diseases of Ginseng.
240. The Influence of Mushrooms on the Growth of Some Plants.
254. Drainage in New York.
257. Defects in American Cheddar Cheese.
258. The Molting of Fowls.
262. Apple Orchard Survey in Niagara County.
265. Certain Seed-Infesting Chalcis-Flies.
266. The Black Rot of the Grape and Its Control.
267. Fertilizing and Seeding Experiments with Root Crops.
270. Fancy Cheese for the Farm and Factory.
272. Fire Blight of Pears, Apples, Quinces, etc.
273. The Effect of Fertilizers Applied to Timothy on the Corn Crop Following it.
274. Building Poultry Houses.
276. Peach-Leaf Curl.
277. The Principles of Brooding—The Improved New York State Gasoline-Heated Colony-House Brooding System.
281. Butter Moisture-Tests.
282. Seven Methods of Feeding Young Chickens.
283. The Control of Insect Pests and Plant Diseases.
284. Labor-Saving Poultry Appliances.
285. Cause of "Apoplexy" in Winter-Fed Lambs.
286. Snow-White Linden Moth.
288. Spray Injury Induced by Lime-Sulfur Preparations.
289 Lime-Sulfur as a Summer Spray.
291 The Apple Red Bug.
292. Cauliflower and Brussels Sprouts on Long Island.
293. The Black Rot Diseases of Grapes.
294. A Heretofore Unnoted Benefit from the Growth of Legumes.
295. An Agricultural Survey of Tompkins County.
296. Spraying for Black Rot of Grapes in a Dry Season.
297. Studies of Variation in Plants.
298. The Packing of Apples in Boxes.
300. The Cabbage Aphis.
301. Sweet Pea Studies—I.
302. Notes from the Agricultural Survey in Tompkins County.
303. The Cell Content of Milk.

RURAL SCHOOL WORK

The Cornell Rural School Leaflet is a publication issued by the New York State College of Agriculture in the interest of education. It is designed to carry to the teachers of the state subject-matter on agriculture and nature-study topics, and to the school children of rural districts new inspiration and interest in country life.

Formerly Leaflets were sent monthly to all teachers and school children in New York State requesting them. The increasing demand for the publication without increased funds has made it necessary to change the method of distribution. The plan for 1911-12 is as follows:

1. The September Leaflet will be sent to every teacher in New York State who can be reached. This Leaflet will contain subject-matter for this year's work as outlined by the State Syllabus: The subject matter in the above has been prepared in the departments in the State College in which the subjects are taught. The pedagogy of the lessons is under the direction of one who has taught all the grades and also High School and University students.

In the first six grades in school, all teachers are encouraged to give the work in Nature-Study and Agriculture in a way to develop the spirit of the naturalist,—an all-round interest in the out-of-doors. In the more advanced grades, the teaching should have relation to Agriculture, the work selected for most serious study being that of greatest interest in the community; such as fruit growing, raising of farm crops, dairying, and the like. In addition to the work outlined by the Syllabus, we have published in the September issue some special suggestions of interest to all who have to do with country life. Each year effort is made to give the child a knowledge of one naturalist, Henry D. Thoreau being chosen for the current year. Quotations from the writings of this naturalist have been given in connection with nearly all the subject matter. We have also described some apparatus for both city and country schools, and have indicated ways in which inspiration can be given in the teaching of Nature-Study and Agriculture.

2. Special numbers of the Cornell Rural School Leaflet for children will be sent out during the year to teachers and pupils in communities of 3,000 inhabitants or less. Our funds will not be sufficient for us to send children's publications to city teachers. To reach the country boys and girls we enclose in all thhe copies of the September Rural School Leaflet sent to teachers in communities of 3,000 inhabitants or less a supplement which contains a roster blank. This the teacher is to fill out with the names of his pupils and return to us, and the children's Leaflets will be sent as they appear. This year we shall publish three Leaflets for boys and girls; one in December, one in February, and one in April. These Leaflets will contain suggestions of interest to farm children along such lines as experimental work in agriculture, manual training, home-making, gardening, and the like. In one of the Leaflets for children, we intend to furnish special helps in poultry raising.

3. In addition to teachers of rural schools, we hope to include in our mailing list all persons who are directing the education of the state. We would also like to reach all young men between the ages of 16 and 22 who are living in the country, for we feel that this age is a critical one and that we can help them.

4. We shall make effort during the year through the Rural School Leaflet to get some standardized equipment throughout the rural schools of the state. If rural communities are given a list of some simple apparatus and essential books, we feel sure that some of these will be secured. We are asking all persons interested in education to help with suggestions for this part of our work.

5. Special effort will be made to keep in touch with District Superintendents and teachers of training classes.

6. Boys and girls throughout the state are encouraged to call on the College of Agriculture for help in all their work relating to Nature-Study and Agriculture. We shall try to answer children's letters in a way that will keep up the interest. We send a picture to all boys and girls who write three times during the year on some country life subject.

7. We have established a Corn Day for all schools, to be clebrated in January. In many schools this is becoming an annual exercise, and some of these schools send us exhibits for our Rural School Corn Show during Farmers' Week in February.

READING-COURSES

Beginning in October, 1911, a publication known as the "Cornell Reading-Courses" will be issued by the College. This is to be an enlargement and revision of the Farmers' Reading-Course and the Farmers' Wives' Reading-Course that have been published by the College for ten years. The purpose of the Courses will be to place before the reader semi-monthly throughout the year a lesson on the Farm and one on the Farm Home, to the end that the reader may receive definite and consecutive information on important farm, household and general rural problems. The lessons on the Farm Home, numbered from one to twenty-three inclusive by [illegible] lessons [illegible] by even numbers, will be issued on the fifteenth of each month.

THE FARM READING-COURSE.

Definite series of lessons on the Farm, with two or three numbers in each series on such subjects as Soils, Dairying, Horticulture, Poultry, Animal Husbandry and others, will be started this year, each series to carry a consecutive serial number. The remainder of the lessons in each series will follow as rapidly as practicable. The Reading-Course for the Farm will be a means, therefore, of keeping the reader in constant touch with the latest ideas on agriculture.

The first lesson of the Cornell Reading-Course for the Farm is entitled "The Soil." This is the first of the series on the soil, presenting with a clear picture of what the soil is and how it should be managed for the agriculture of the region of New York State. The numbers following in this series on soil will carry the reader to a further discussion of soil problems with special reference to particular crops.

The following is a list of the back numbers of the Farmers' Reading-Course that are still available:

4. Plant-food from the Soil.
5. Plant-food from the Air.
7. Computing Rations.
8. Sample Rations.
9. Soiling, Silage and Roots.
10. Pastures and Meadows.
21. The Care of Milk on the Farm.
22. The Composition of Milk and Cream and Their By-Products.
23. Dairy Stables.
24. Farm Butter-Making.
25. The Dairy Herd.
27. Tasteful Farm Yards.
28. The Plan of the Farm-House.
29. Water Supplies for Farm Residences.
30. Barns and Outbuildings.
34. Seed Corn for Grain and Silage.
36. Agricultural Extension.
37. Drainage.
38. Experiments.
40. Tillage and Fertilizating in Orchards.
41. Improving Plants by Selection or Breeding.
42. Improving Corn by Seed Selection.
43. Methods of Breeding and Improving the Potato Crop.
44. Horse-Breeding in New York State.

Those interested may secure information, or may register, by addressing The Cornell Reading-Course for the Farm (Charles H. Tuck in charge).

The reader is encouraged to ask questions touching farming and rural conditions.

FARM HOME READING-COURSE.

This is the natural successor of the Farmers' Wives' Reading-Course. It will discuss those rural problems that specially concern the work and welfare of women.

The growing concern in the importance of the scientific care and rearing of human beings is a reason not only for a course of study in the school but for a reading-course at home for the women who are out of school. It is a study of human nutrition, planning of dietaries, nursing and emergencies, sanitation, the cost of living, the care of children, dressmaking, millinery, house planning and furnishing.

Bulletins of the former Farmers' Wives' Reading-Course now available are:

Old Series
No. 1, Saving Steps.
No. 2, Decoration in the Farm Home.
No. 3, Practical Housekeeping.
No. 4, The Kitchen Garden.
No. 5, Flowers and the Flower Garden.
No. 6, The Rural School and the Farm Home.
No. 7, Boys and Girls on the Farm.
No. 21, Suggestions to Readers.
No. 27, A Month of Education Discussion.
No. 28, Another Study on Household Equipment.

New Series.
No. 1, Saving Strength.
No. 2, Insect Pests of House and Garden.
No. 4, Household Bacteriology.
No. 6, Human Nutrition, Part I.
No. 7, Human Nutrition, Part II.
No. 8, The Care and Feeding of Children, Part I.

The first lesson in the new Farm Home Course will be Part II of "The Care and Feeding of Children."

Persons desiring to register in this course may address Cornell Reading-Course for the Farm Home (Miss Martha Van Rensselaer and Mrs. Ida S. Harrington in charge).

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

VOL. 1 ITHACA, N. Y., NOVEMBER, 1911 NO. 2

This "Announcer" is published for the purpose of acquainting the people of the State with the kinds of work that are in progress by the State College of Agriculture. It announces the investigations, the extension enterprises on farms and with the people, the forthcoming bulletins, the reading-courses, the local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the "Announcer," on request, so far as the size of the editions will allow.

THE WINTER-COURSES

The Winter-Courses, five in number, will begin November 28, 1911, and close February 23, 1912. They are business and occupational courses, not academic; hence, there are no examinations for admission. Anyone who has graduated from the common schools of the State, or who has an eighth grade certificate, should be able to do the Winter-Course work satisfactorily. All the courses are open to both men and women of at least seventeen years of age. Many persons of mature age attend the courses each winter with profit. Tuition in the Winter-Courses is free to residents of New York State. Non-residents pay a tuition fee of $25.

The courses are as follows:

1. **General Agriculture.**—The course in General Agriculture embraces brief studies in soils, their physical and chemical characteristics and their management; manures and fertilizers, their sources, composition and use; the more important farm crops, their culture and use; the breeds and breeding of farm animals; the principles of feeding; horticulture, the principles of growing fruits, vegetables, and flowers, budding, grafting, pruning, spraying, harvesting and marketing. The students also have opportunity to elect work along one or more of the following lines: farm mechanics, farm dairying, farm poultry, economic entomology, plant diseases, animal hygiene, farm structures, plant breeding, and farm Forestry.

2. **Dairy Industry.**—This course includes a study of milk and its products, animal feeding, dairy mechanics, dairy chemistry, general agriculture, diseases of dairy cattle, butter-making, cheese-making, milk testing, care of market milk, dairy bacteriology, dairy bookkeeping, etc. Beginning Thursday, Feb. 29, and closing Wednesday, March 6, a special one-week course for managers of factories and creameries will be held. A special announcement of it, giving full details and illustrations, is now ready for distribution.

3. **Poultry Husbandry.**—In this course is included a study of the breeds and breeding of fowls, poultry farm management, feeding for egg production and for meat, incubating, brooding, caponizing, planning and building poultry houses, etc. The course is now filled for the coming winter.

4. **Horticulture.**—This course, or group of courses, has been subdivided this year into three parts: 1, Fruit growing, including a study of commercial fruit growing, plant diseases, economic entomology, fertility of the land, and principles of plant culture. 2, Vegetable culture, including, in addition to the foregoing, a special study of the growing of vegetables for market. 3, Flower growing, a special course on the growing and marketing of greenhouse crops. Opportunity is given in connection with the last two divisions to take additional work in plant breeding, farm forestry, a study of horticultural literature, and extension work.

5. **Home Economics.**—The main object of this course is to furnish scientific training in the subjects that pertain to the home. Special attention is given to household sanitation, the selection and preparation of foods, problems of nutrition, house construction and decoration, household management, and sewing. Additional work may be taken in some of the subjects included in the courses in Horticulture, Dairy Industry, and Poultry Husbandry.

GENERAL ANNOUNCEMENTS

COOPERATIVE EXPERIMENTS.

Soil Technology.—The Department of Soil Technology is cooperating with the high schools throughout the State in the study of soil fertility. Samples of fertilizers are supplied to applicants at cost. The fertilizers are put up in two different forms: first, in small vials to be used as samples for examination; second, in small bags to be used in pot culture work.

These materials are supplied to assist the high schools teaching agriculture in following the syllabus on agriculture as issued by the State Education Department. The small amounts of a large variety of fertilizer materials required for study and to carry out some of the simple tests outlined can not usually be obtained from the fertilizer manufacturers. A charge of two dollars is made for the full set in vials and bags, and the supply may be renewed at approximately the cost of material.

Dairy Industry.—The Department of Dairy Industry is conducting Cow Test Work in cooperation with farmers in the vicinity of Ithaca. The work has been under way for some time and is giving promising results. Each farmer pays one dollar per cow for the year, in return for which a representative of the college visits his farm one day each month for the purpose of making a record of the amount of milk and butter-fat each cow produces and the amount of feed she consumes. On the basis of the one day's record, the yield and cost of feed for each cow for the month is calculated. At the end of the year the approximate production and cost of feed for each cow can be determined. The results of the work thus far will soon be ready for publication in bulletin form.

Farm Crops.—The cooperative demonstrations on farms by the Department of Farm Practice and Farm Crops will be planned to help farmers in different localities in the State to solve difficult problems in crop growing and general farm practice. It is desirable that each demonstration or experiment should interest the entire community in which it is undertaken. Correspondents wishing to cooperate with the Department should state what their specific problems are, or what the community particularly needs. Personal visits by a representative of the college will be made when the conditions seem to warrant it.

The Department wants to correspond with persons who have varieties of corn that have proved their value in a given locality; with those who have pastures in need of renovation or land on which they wish to establish new pastures; and with dairymen who desire to grow more nitrogenous fodders for hay and ensilage. Suggestions as to the lines of work in which cooperation might be undertaken will be gladly received.

Plant-Breeding.—In the timothy breeding experiments, a number of new varieties have been produced that are now being tested in various parts of the State. Cooperative tests are already under way with the State Schools of Agriculture at Canton and Morrisville, where sets of the new varieties have been planted in comparison with plats of the best timothy seed that could be purchased in the local markets at these places. These are all one-fortieth acre plats sowed broadcast, to give comparative results of growing the new sorts under field conditions.

For the last four years the Department of Plant-Breeding has been cooperating with farmers in the breeding and improvement of corn. The primary object of these experiments is to secure better yielding varieties of Dent sorts, which can be trusted to mature seed in this State. Such cooperative experiments are being conducted near the following places: Aurora, Utica, Ballston Lake, Bedford Station, and Lincolndale. A test made this season at Ballston Lake indicates that there has been a gain of about two weeks in season of maturity as a result of the selection. It is expected that the cooperative work with corn will be extended considerably next year.

LAND DRAINAGE.

Prizes consisting of three medals have been offered by the New York State Drainage Association for the best reports of practical experience with tile drainage. Circulars outlining the conditions of the competition may be had from the President of the Association, Professor E. O. Fippin, Ithaca. Reports must be submitted by January 15, 1912.

STUDY OF BACTERIA IN NODULES OF LEGUMINOUS PLANTS.

An extended investigation of the bacteria in the nodules of leguminous plants has been undertaken by the Department of Plant Physiology. A special feature of this work is the endeavor to determine the practicability of propagating the organisms in natural or sterilized soil; further, when thus propagated, to determine the effect of various conditions on the vitality of the bacteria, and the application of these results to soil inoculation work.

No cultures of these organisms are at present available for distribution, and none will be available until the laboratory results may be confirmed and extended. Some of the important practical facts which now may be noted are the following:

(1) If soil is taken from a field in which alfalfa showing an abundance of nodules is growing, it is still difficult, employing the usual laboratory culture methods, to determine the presence of nodule bacteria in this soil. The bacteria cannot be present in very large number.

(2) Nevertheless, such a soil as that referred to has been shown to be effective for inoculation purposes when scattered over fields (previously uninoculated) at the rate of 150 to 200 pounds per acre.

(3) On the other hand, when this field soil is sterilized, inoculated with pure culture of the nodule bacteria, the soil cultures then incubated for a few days, and the number of germs present determined by the usual culture methods, it has been found in particular cases that there are present fifty million or more of these bacteria per gram of soil.

From these facts it is evident that unless subsequently the vitality of the germs grown in the sterilized soil is greatly reduced, a small amount of such inoculated soil should have a high value in field distribution. Vitality studies are now being made to determine the more important factors that may affect the value of such pure soil cultures when employed on a practical scale for inoculation purposes.

EXPERIMENTS IN BREEDING TIMOTHY.

Timothy has never been subjected to careful breeding and varieties have not been differentiated. As yet we grow simply timothy. Practically all other agricultural crops widely cultivated have been carefully bred and differentiated into numerous distinct varieties. Hence we might expect great advances from carefully conducted breeding experiments with timothy.

The timothy breeding experiments that have been under way at Cornell University since 1903 are now giving particularly interesting results. In beginning these experiments, timothy heads were obtained from 231 different places in various parts of the world, twenty-one states, Canada, Japan, and nine European countries being represented. From these seeds and from locally obtained seed, somewhat over 20,000 different individual plants were grown, from which selections were made to secure better yielding varieties.

In the course of our experiments a large number of distinct varieties have been originated, many of them of interest simply from a scientific standpoint but others apparently possessing great value for general cultivation. For five years tests have been made of the comparative yields of different types when grown in rows, and for two years similar comparative-yield tests have been made with 17 new varieties in plats sowed broadcast. The possible value of the results is clearly suggested by the yields of the broadcast plats. In testing these 17 new sorts, they were planted in comparison with check plants sowed with the best timothy seed that could be purchased on the market, there being 7 check plats equally distributed among the 17 new sorts.

The average results are shown by the following records: In 1910, the 17 new sorts gave an average yield per acre of 7451 pounds, and the check plats for the same year gave an average yield per acre of 6600 pounds. The 17 new sorts in this year thus gave an actual average increase per acre of 851 pounds for all 17 selections. In this year three of the new sorts did not show their superiority, not getting well started, and gave yields below their corresponding checks. This served to keep the average increase in yield down to a comparatively low figure. The best and most vigorous of the new sorts gave very much higher increase, the highest increase being 2120 pounds per acre and the second highest 1920 pounds per acre.

Ordinary timothy usually begins to deteriorate very soon and meadows run out so that in the best farm practice fields are rarely kept in timothy for more than two or three years. This running out probably is due to many causes, but certainly is due in large measure to lack of vigor and vitality and to the susceptibility of the ordinary timothy to rust and other diseases. On the other hand, the new sorts have been selected for their great vigor, running through a number of years, and for their ability to stool abundantly and their resistance to rust. Naturally, therefore, they would be expected to improve while the ordinary timothy would be expected to deteriorate rapidly, possibly after the first or second year. These different tendencies seem to be brought out strikingly in the results from the 1911 crop.

The season of 1911 was very dry and severe and the timothy crop as a whole suffered considerably as a result. The plats of the 17 new varieties gave an average yield of 7153 pounds per acre, which is only slightly less than the yield of 1910 and which, considering the season, should be regarded as a larger yield. The seven check plats, however, gave an average yield of only 4091 pounds per acre, a very material decrease from the yield of 1910. The average increased yield of the 17 new sorts in 1911 was 3062 pounds per acre, which is an astonishing figure, being an increased yield of over 1½ tons per acre. Four of the high-yielding sorts in 1911 gave an increased yield of over 2 tons per acre, or practically double the average yield of the checks.

The best of these new varieties are now being propagated as rapidly as possible and arrangements will be made next year or the year following to distribute them throughout the State. Their general cultivation should greatly increase the yield per acre of our timothy meadows. No seed is now available for distribution, as every seed is being used for increase purposes. When any distribution is made, the methods of distribution to be used will be fully announced.

PUBLICATIONS

FARM MANAGEMENT INVESTIGATIONS. (Bulletin No. 295).

One of the lines of work of the Department of Farm Management is the agricultural survey. In this work, the capital, receipts, and farm expenses are obtained for a year for all the farms of a given section. From these data it is possible to calculate what the farmer has made during the year. By subtracting what his capital would have made if placed at interest, we are able to find what wages the farmer received for his year's work, or what his labor income was.

The survey work has been in progress for five years. The Department of Farm Management has secured records for 983 farms in Tompkins County, 671 in Livingston County, and during the past summer has secured records for 755 farms in Jefferson County. The chief purpose of this work is to learn why some farms pay better than others. By comparing large numbers of farms, certain systems of farming stand out as being more profitable than other systems.

One of the points that stands out clearly is the importance of diversified farming. The farmers who depend largely on apples, potatoes, or any other single crop are not doing so well as those who keep animals also. Dairymen that sell nothing but wholesale milk or butter find it particularly difficult to make good wages. In Tompkins County, the dairy farmers who derive less than one sixth of their receipts from crops made wages (labor incomes) of $388 per year or $1.24 per day (313 days per year). Those who derived over one sixth of their receipts from crops made wages of $749 per year or $2.39 per day. Several of the most successful farmers sell $1000 to $3000 worth of crops and do the work with only one more man and no more horses than are required to do the milking and dairy work. Bulletin No. 295 tells how they do this. In communities in which no other work than dairying is done, the women usually help to milk because it does not pay to hire a man unless there is work for him all day.

In Livingston County, the farmers who derived less than one fifth of their receipts from crops, made wages (labor incomes) of $597 per year. Those who derived one fifth to four fifths of their receipts from crops made wages of $710. Those who derived over four fifths from crops averaged only $579. The combination of cash crops with animal products pays better than either one alone.

The figures for Jefferson County are not yet tabulated but it is evident that the lack of diversity is one of the most serious difficulties in this county.

In these days we hear much about specialization, but farmers need several specialties rather than one and can well combine many minor products with these specialties. On each of the most successful farms there are two to four leading products, and in most cases many minor products also. Farms with three leading products are doing better than those with only two.

By combining two or more leading products, the receipts are greatly increased without much increase in expenses. For example, milk, potatoes, and hay may be raised for sale with little more labor than is required for producing milk. The combination of all three requires little more equipment or horses than is required for any one. Other combinations are equally efficient. The minor products, as eggs, colts, etc., also help.

It is only by combining several leading products that a farmer can keep most profitably employed all the day and all the year. If a dairyman retails his milk, this furnishes occupation between milkings; but the most successful retail milk farms that we have found have other products also. One sold pure-bred cattle, hay, eggs, colts and a number of minor products. Another combined potatoes with retail milk. Many of the profitable farms selling wholesale milk also sell hay, but those that have a third cash crop are doing better. Milk, potatoes, and hay is a very good combination. Milk, apples, and hay is equally good. Cabbages are added to either of the above combinations with profit. But we do not find large areas of both apples and potatoes together as they are harvested at the same time. In Livingston County, beans, potatoes, wheat, and milk is one of the best combinations. Cabbages are added by some farmers. Apples replace the potatoes on some farms. Sheep sometimes replace the cows.

One of the most profitable apple farms in the State combines apples, cabbages, beans, and sheep, besides raising all the hay, oats, and corn used and selling some hay, wheat, eggs, hogs, etc. One of the most profitable milk farmers, who raises 65 acres of spinach, lettuce, and celery, finds that with the same teams and men he is able to run another farm of 90 acres on which he raises alfalfa and oats to feed all the teams and wheat to sell.

The best combination for any particular farm depends on the region. The essential point is that the farmer have a combination that will furnish the most profitable work throughout the day and throughout the year. There is no single product that will do this.

This is but one of the many points that are characteristic of the best paying farms. Bulletin No. 295 gives a complete report of the agricultural survey work in Tompkins County. It will be sent on request. The bulletins for Livingston and Jefferson Counties will not be ready for some time.

AVAILABLE BULLETINS.

The following bulletins and circulars of the Cornell University Agricultural Experiment Station are available for distribution to those residents of New York State who may desire them:

Bulletins:

141. Powdered Soap as a Cause of Death among Swill-Fed Hogs.
154. Table for Computing Rations for Farm Animals.
168. Studies and Illustrations of Mushrooms: II.
207. Pink Rot an Attendant of Apple Scab.
219. Diseases of Ginseng.
240. The Influence of Mushrooms on the Growth of Some Plants.
257. Defects in American Cheddar Cheese.
262. Apple Orchard Survey in Niagara County.
265. Certain Seed-Infesting Chalcis-Flies.
266. The Black Rot of the Grape and Its Control.
267. Fertilizing and Seeding Experiments with Root-Crops.
270. Fancy Cheese for the Farm and Factory.
272. Fire Blight of Pears, Apples, Quinces, etc.
273. The Effect of Fertilizers Applied to Timothy on the Corn Crop Following It.
274. Building Poultry Houses.
276. Peach-Leaf Curl.
277. The Principles of Brooding—The Improved New York State Gasoline-Heated Colony-House Brooding System.
281. Butter Moisture-Tests.
282. Seven Methods of Feeding Young Chickens.
283. The Control of Insect Pests and Plant Diseases.
284. Labor-Saving Poultry Appliances.
285. Cause of "Apoplexy" in Winter-Fed Lambs.
286. Snow-White Linden Moth.
288. Spray Injury Induced by Lime-Sulfur Preparations.
289. Lime-Sulfur as a Summer Spray.
291. The Apple Red Bug.
292. Cauliflower and Brussels Sprouts on Long Island.
293. The Black Rot Diseases of Grapes.
294. A Heretofore Unnoted Benefit from the Growth of Legumes.
295. An Agricultural Survey of Tompkins County.
297. Studies of Variation in Plants.
298. The Packing of Apples in Boxes.
300. The Cabbage Aphis.
301. Sweet Pea Studies—I.
302. Notes from the Agricultural Survey in Tompkins County.
303. The Cell Content of Milk.
304. Substitutes for Skimmed Milk in Raising Calves.
305. The Cause of "Apoplexy" in Winter-Fed Lambs.

Circulars:

1. Testing the Germination of Seed Corn.
2. Fungicides.
3. Some Essentials in Cheese-Making.

4. Soil Drainage and Fertility.
5. Suggestions from a Survey of the Trucking Region of Eastern Long Island.
6. Suggestions concerning treatment of Seed Corn with Deterrents against Crows.
7. The Relation of Lime to Soil Improvement.
8. The Elm Leaf-Beetle.
9. Orange Hawkweed or Paint Brush.
10. Propagation of Starter for Butter-Making and Cheese-Making.
11. Helps for the Dairy Butter-Maker.

READING-COURSES

Beginning in October, 1911, a publication known as "The Cornell Reading-Courses" is issued by the College. This is an enlargement and revision of the Farmers' Reading-Course and the Farmers' Wives' Reading-Course that have been published by the College for ten years. The purpose of the Courses is to place before the reader semi-monthly throughout the year a lesson on the Farm and one on the Farm Home, to the end that the reader may receive definite and consecutive information on important farm, household, and general rural problems. The lessons on the Farm Home, numbered from one to twenty-three inclusive by **odd numbers**, are issued on the first of each month. The lessons on the Farm, numbered from two to twenty-four inclusive by **even numbers**, are issued on the fifteenth of each month.

READING-COURSE FOR THE FARM.

The first lesson of The Cornell Reading-Course for the Farm is entitled "The Soil." This is the first reading-course lesson in the soil and plant series and constitutes an introduction to the subject of soils for purposes of plant production.

The soil is a great natural resource—perhaps the greatest—from which mankind directly or indirectly derives nearly all of its food, clothing, and other comforts. It may be wasted and its efficiency diminished by unwise handling, or it may be built up and improved by the opposite treatment.

The soil, the medium in which plants grow, is almost infinitesimal in thickness as compared with the mass of the earth, and yet it is of very great diversity in character and agricultural value.

The soil is the result of the decay and disintegration of many kinds of rock, mingled with the partially decayed remains of plants and animals. The former are represented by particles of rocks derived through the agency of running water, solution, changes in temperature, freezing of water, the abrasion of wind and glacial ice, the activities of the roots of plants and of animals. The material may have been shifted and deposited by ice, water, or wind. Nearly all New York soils have been formed under the influence of the first two agencies. As such they differ in texture, structure, depth, color, topography, drainage, etc. The plant and animal material, most abundant in the top layer, gives rise to humus, a very important soil constituent.

The agricultural value of a soil depends upon its natural or artificial ability to produce useful plants. The art of tillage consists largely in modifying the natural condition of a soil to better meet the needs of the particular crop planted. The soil furnishes to the plant, moisture, food, air, warmth, and a place for the distribution of its roots.

By the use of tillage, drainage, irrigation, manures, fertilizers, amendments, inoculation, and by crop rotation and crop adaptation these requirements are met. It is evident that they must be guided by our intelligent appreciation of their effects and interrelations. The mistake has often been made of assigning too much importance to commercial fertilizers. These give their full effect only when the physical, chemical and biological conditions are properly adjusted. The significance of this is one of the most important developments of recent study.

The best results can not be accomplished by modification of the soil alone. The rotation of crops and especially their adaptation to the character of the soil must also receive attention.

The following is a list of the back numbers of the former Farmers' Reading-Course that are still available:

4. Plant-food from the Soil.
5. Plant-food from the Air.
7. Computing Rations.
8. Sample Rations.
9. Soiling, Silage and Roots.
10. Pastures and Meadows.
21. The Care of Milk on the Farm.
22. The Composition of Milk and Cream and Their By-Products.
23. Dairy Stables.
24. Farm Butter-Making.
25. The Dairy Herd.
27. Tasteful Farm Yards.
28. The Plan of the Farm-House.
29. Water Supplies for Farm Residences.
30. Barns and Outbuildings.
34. Seed Corn for Grain and Silage.
36. Agricultural Extension.
37. Drainage.
38. Experiments.
40. Tillage and Fertilizing in Orchards.
41. Improving Plants by Selection or Breeding.
42. Improving Corn by Seed Selection.
43. Methods of Breeding and Improving the Potato Crop.
44. Horse-Breeding in New York State.

Those interested may secure information, or may register, by addressing The Cornell Reading-Course for the Farm.

The reader is encouraged to ask questions touching farming and rural conditions.

READING-COURSE FOR THE FARM HOME.

The most important farm product is the baby. Is the same intelligent care being given to the production of efficient men and women on the farm as to the production of better farm crops and farm animals?

Factors determining human efficiency are inheritance, environment, and food. The first lesson in the Farm Home Reading-Course, on The Care and Feeding of Children, Part I, takes up a discussion of the care of the mother before the birth of the child; of the condition governing her general health, as exercise, diet, fresh air, and mental attitude, and the relation these bear to the future health of the child; of the needs of the baby as to sleep, exercise, fresh air, bathing, clothing, diet, and regularity of meal times; of the food for the mother during the nursing period; of the age for weaning the baby. The care of the baby is shown to demand a knowledge on the part of the parents, and a plea is made for more attention to this side of farm life.

Bulletins of the former Farmers' Wives' Reading-Course now available are:

Old Series.

No. 1. Saving Steps.
No. 2. Decoration in the Farm Home.
No. 3. Practical Housekeeping.
No. 4. The Kitchen Garden.
No. 5. Flowers and the Flower Garden.
No. 6. The Rural School and the Farm Home.
No. 7. Boys and Girls on the Farm.
No. 21. Suggestions to Readers.
No. 27. A Month of Education Discussion.
No. 28. Another Study on Household Equipment.

New Series.

No. 1. Saving Strength.
No. 2. Insect Pests of House and Garden.
No. 4. Household Bacteriology.
No. 6. Human Nutrition, Part I.
No. 7. Human Nutrition, Part II.
No. 8. The Care and Feeding of Children, Part I.

Persons desiring to register in this course may address The Cornell Reading-Course for the Farm Home.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

VOL. I **ITHACA, N. Y., DECEMBER, 1911** **NO. 3**

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

EXTENSION WORK, 1911-1912

A well-developed college of agriculture engages in three general lines of work: the regular teaching, in college courses, of students that come to it; investigation and research into agricultural and rural problems; extension work. The present issue of the Announcer is devoted to the extension work of the New York State College of Agriculture.

Extension work in agriculture comprises all educational efforts at the homes and on the farms of the people, and also such work at Ithaca (as the winter-courses) that is more or less temporary and that centers chiefly in interests away from the institution. Extension work is welfare work, and is properly a necessary part of an institution that is maintained by the people for the service of the people.

Extension work should aid the people in the solving of their own problems of farming and also the social, economic, and educational problems of farming communities. To this end, it is necessary that trained men be available in many different lines of agricultural work.

At the New York State College of Agriculture, a regular extension staff is in process of organization. About a dozen teachers and a dozen clerks are now giving their time to extension work, aside from the other members of the staff all of whom give more or less attention to it; and the regular staff also handles the winter-courses. Each of the departments in the College dealing with agricultural subject-matter is expected to undertake extension work, and, so far as possible, special men are provided in these departments for such work. The responsibility for the character of the work in these departments lies with the departments themselves. For example, the extension work in poultry subjects lies with the Poultry Husbandry Department, the same as the responsibility for the regular teaching of students and for research work in these subjects lies with that department; and the same is true of all other departments in the College. This will explain to the people of the State why it is that many different persons in the College are engaged in extension work, and that not all the extension effort issues from one office.

However, it is desired to coordinate all the work through a regular extension department; and this department administers all extension work that is not strictly departmental. That is to say, while the Department of Extension Teaching does not conduct poultry work or soil work itself, it aids these and other departments in projecting their work in the State, helps to arrange meetings, and has general charge of the administration of extension enterprises. Some of these general extension enterprises are: special schools, to be held in different localities; work at the fairs; reading-courses and correspondence work; farmers' week; excursions to the College; Experimenters' League; management of resident or local agents; mailing-room work; welfare work of any kind in the rural communities; and general publicity and helpfulness of the College of Agriculture to the people of the State. Aside from this, the Department of Extension Teaching also gives regular instruction to college classes for the purpose of training students in public speaking, parliamentary practice, and in extension projects and methods.

All this outside work of the College of Agriculture is coordinated by means of a Committee on Extension Work of six members of the Faculty appointed by the Director of the College and of which the Professor of Extension Teaching is also a member. This Committee meets frequently, and the plans for extension enterprises are discussed in detail. In this way it is expected that all the many lines of effort will be organized or unified into an orderly plan representing the College as a whole, and that the extension enterprise will not consist merely of piece work here and there. The purpose of the extension work is to bring the College to the aid of any farmer or any rural community in any kind of real educational work that may be required by such person or community. Of course, it is impossible to reach this result immediately, and it will never be possible to attain it completely.

The spirit of the extension work is to help the people to help themselves. The work should not provide entertainment, and it should not exploit. It is not agricultural propaganda. So far as possible the instruction should be given by persons who are mature in their subjects. We desire to do serious work in the communities, of such character that it will have permanent results. It will not be likely to have permanent effect unless the people of the localities take active part, contributing effort and also part of the maintenance expenses. Extension work is cooperative work. There is much demand for help in the communities, and we cannot meet all the demands; we choose those places in which the people are most ready to cooperate or which seem to be in greatest need; and we aim to distribute the benefits of the effort equitably throughout the State.

A natural result of extension effort will be the arising of offices or agents or representatives in the localities to carry out the work, distribute literature, and to keep in touch with the needs of the people; the more intensive the work, the greater will be the necessity of centering it strongly in the communities themselves. These agents may be expected to arise as they are needed and as the work grows. They should be actual residents of the communities, and either good farmers or teachers.

WINTER-COURSES

The winter-courses, beginning November 28, 1911, and closing February 23, 1912, are a part of the extension organization of the New York State College of Agriculture. Winter-course work was begun at Cornell nearly twenty years ago (1893), as a general course on agriculture. In the following year a special winter-course in dairying was begun. Eleven years later (1905) a poultry winter-course was established. In the following year, courses were undertaken in horticulture and home economics. These five courses are now in regular operation. The number of students enrolled in the winter-courses last year was 477, distributed as follows:

General Agriculture	234
Dairy Industry	107
Poultry Husbandry	56
Horticulture	48
Home Economics	31

These students come from all parts of New York State. The larger part of them are directly from the farms.

In each of the five winter-courses there are certain required subjects, but the student is allowed to take more or less elective work. Altogether there are 44 different subjects or classes offered this year to winter-course students.

In the Dairy Department a special one-week course is given for managers of creameries and milk establishments, providing an opportunity for those who are already engaged in the business to get in touch with the latest applications of science and practice. This special course begins Thursday, February 29th, and ends Wednesday, March 6th.

SUMMER SCHOOL

The Summer School in Agriculture is part of the regular teaching of the College. It has relation to the extension activities because it seeks to further the work of those responsible for agricultural teaching in the rural schools of the State. Its object is to train persons who desire to teach agriculture, including nature-study and home economics, in the public schools. Last summer instruction was given in three distinct groups of subjects, in any one [illegible] the student could spend all of his time: (1) Agriculture, [illegible] instruction in soils, agricultural chemistry, farm crops, animal husbandry, dairy industry, poultry husbandry, pomology, farm management, entomology, plant pathology, and meteorology. (2) Nature-Study and Elementary Agriculture, embracing a study of the history, development, and pedagogics of the nature-study idea; school gardens; field trips; collection, preparation, and preservation of materials; rural education; nature literature; and specific lessons in elementary agriculture and nature-study as outlined in the syllabus issued by the New York State Education Department for 1911-12. (3) Home Economics, covering the general subject of foods, human nutrition, principles of household economy, and household sanitation. The course for the summer of 1912, beginning July 8 and closing August 16, will be extended in scope.

EXTENSION SCHOOLS

The College of Agriculture is prepared, for the coming year, to place a few extension schools in different parts of the State. In these schools definite instruction with special reference to the immediate locality concerned will be given. These schools are of one to two weeks duration, conducted by members of the College staff.

Popular lectures will be given at these schools in the evening, but the days will be occupied by regular instruction on subjects applicable to the region. The program for one of the schools is as follows:

Monday

9:00-10:00 A.M.	Registration.
10:00-11:00 A.M.	Lesson—Corn Selection and Breeding.
11:00-12:00 A.M.	Lesson—The Old Apple Orchard—Part 1.
1:00- 2:00 P.M.	Lesson—Alfalfa.
2:00- 4:00 P.M.	Practice Period—Corn Selection and Judging.

Tuesday

9:00-10:00 A.M.	Lesson—The Old Apple Orchard—Part 2.
10:00-11:00 A.M.	Lesson—Potato Selection and Breeding.
11:00-12:00 A.M.	Lesson—Clovers.
1:00- 2:00 P.M.	Lessons—Farm Management and Farm Accounts.
2:00- 4:00 P.M.	Practice Period—Potato Selection and Breeding.

Wednesday

9:00-10:00 A.M.	Lesson—Pastures.
10:00-11:00 A.M.	Lesson—Soil Fertility.
	(A) Causes of Decline.
	(B) Role of Humus.
11:00-12:00 A.M.	Quiz —Corn and Potatoes.
1:00- 2:00 P.M.	Lesson—Manures and Cover Crops.
2:00- 4:00 P.M.	Practice Period—Legumes and Grass Seeds.

Thursday

9:00-10:00 A.M.	Lesson—(A) Lime and Its Uses.
	(B) Commercial Fertilizers.
10:00-11:00 A.M.	Lesson—Plant Growth.
11:00-12:00 A.M.	Lesson—Feeds and Feeding—Part 1.
1:00- 2:30 P.M.	Discussion and Quiz —Fertilizers and Manure.
2:30- 4:00 P.M.	Lesson—Apple Scab.

Friday

9:00-10:00 A.M	Lesson—Feeds and Feeding—Part 2.
10:00-12:00 A.M.	Lesson—Bean Diseases.
1:00- 2:30 P.M.	Lesson—Improving the Dairy Herd—Part 1.
2:30- 4:00 P.M.	Lesson and Practice Period—Smuts.

Saturday

9:00-10:00 A.M.	Lesson—Improving the Dairy Herd—Part 2.
10:00-12:00 A.M.	Lesson—Potato Blight.
1:00- 2:30 P.M.	Lesson—Care and Handling of Milk.
2:30- 4:00 P.M.	Discussion and Quiz —Plant Diseases.

Special attention is given not only to lectures but to demonstrations, quizzes, and general practice periods. The aim is rather to carry a few important lines of study throughout the course than to give a smattering of a large number of subjects. Large classes are not expected nor desired. Twenty-five to seventy-five persons make a satisfactory class.

The schools are placed only on request, and only when the local expenses are borne by the members. Regular tuition fees are usually charged by the local organization, and [illegible] ever age) are regularly enrolled as in a class. A [illegible] have now been placed for the winter. Address the Extension Department.

TRAVELING SCHOOLS

In response to the demand of rural communities to give adequate instruction with the necessary teaching material at hand, to those persons wishing further opportunity to study given farm problems, railroad passenger cars will be equipped with tables, chairs, charts, models, microscopes and other necessary teaching material. In this way a class of twenty-five to fifty persons, of whatever age, may be carefully instructed for a few days or two weeks as arranged. This will give opportunity for instruction in subjects requiring special demonstration material and will naturally follow the extension schools. The car will stand on a siding during the instruction and can be readily moved to the next school. For further information, address Extension Department.

The "farm train," as formerly run, will be discontinued.

READING-COURSES

As already explained in the Announcer, The Cornell Reading-Course is available to all residents of the State. This is not a "correspondence course" as that term is commonly understood, but is a means of developing the reading habit and of giving instruction in subject matter that is particularly adapted to New York. The Course is in two parts:

Reading-Course for the Farm.—For those who are unable to leave their work but desire to receive information on farm problems. Lessons are issued the fifteenth of each month. Questions will be answered and further instruction supplied on request. Lessons are numbered with even numbers because published alternately with the Lessons on the Farm Home. The following subjects will appear in the regular Lessons:

Series	Subjects No.	
Soil	2.	The Soil: Its Use and Abuse.
Poultry	4.	Incubation, Part 1.
Poultry	6.	Incubation, Part 2.
Rural Engineering	8.	Knots, Hitches, and Splices.
Poultry	10.	Feeding Young Chickens.
The Horse	12.	Horse Breeding.

Persons interested should begin the Course by taking the first lesson in the soil series and choosing a series for continued study. Where there is a request for group study, aid will be given in organizing reading-course clubs. These will be informal groups of persons desirous of studying in common and securing from the College hints through literature and lectures as to organization, study methods, and cooperation with other similarly organized movements.

The following is a list of the back numbers of the former Farmers' Reading-Course that are still available:

4. Plant-food from the Soil.
5. Plant-food from the Air.
7. Computing Rations.
8. Sample Rations.
9. Soiling, Silage and Roots.
10. Pastures and Meadows.
21. The Care of Milk on the Farm.
22. The Composition of Milk and Cream and Their By-Products.
23. Dairy Stables.
24. Farm Butter-Making.
25. The Dairy Herd.
27. Tasteful Farm Yards.
28. The Plan of the Farm-House.
29. Water Supplies for Farm Residences.
30. Barns and Outbuildings.
34. Seed Corn for Drainage and Silage.
36. Agricultural Extension.
37. Drainage.
38. Experiments.
40. Tillage and Fertilizing in Orchards.
41. Improving Plants by Selection or Breeding.
42. Improving Corn by Seed Selection.
43. Methods of Breeding and Improving the Potato Crop.
44. Horse-Breeding in New York State.

Those interested may register for the Course by addressing The Cornell Reading-Course for the Farm.

Reading-Course for the Farm Home.—Similar to the above but discussing household economy, cooking, and home furnishing. Lessons issued the first of each month.

Lessons on The Care and Feeding of Children are ready for distribution. They treat of the care of babies in Part 1, and of the older children in Part 2. The December Lesson will be on the farmhouse and its decoration and the January Lesson on the furnishing of the house. Reading in the farm home will be treated in a later Lesson and then will follow one on programs for club study. Several rural study clubs are organized in various parts of the State and the subject of this Lesson will be to aid in the organization and furtherance of the clubs.

Bulletins of the former Farmers' Wives' Reading-Course now available are:

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No. 4. Household Bacteriology.
No. 6. Human Nutrition, Part I.
No. 7. Human Nutrition, Part II.
No. 8. The Care and Feeding of Children, Part I.

To register in this Course address The Cornell Reading-Course for the Farm Home.

FARMERS' WEEK

(February 19 to 24, 1912)

The week of Washington's Birthday fixes the date of Farmers' Week for the people of the State of New York. At this time persons interested in agriculture come to the College to hear lectures, to take part in discussions, reports, and demonstrations to the end that each may improve his understanding and practice of his particular problems.

The program is so arranged that a definite and connected line of work may be followed, as, for example, lectures and demonstrations throughout the week on dairying, or on poultry-raising, fruit-growing, growing of general farm crops, and the like; or one may devote his whole time for the week to the economic, social, and educational questions.

In the past, organizations, such as subordinate granges and reading-course clubs, have sent delegates with expenses paid to study certain subjects, to take careful notes and to report to the home organization at their meetings. This is a great aid to the educational work of any organization. Such delegates will receive special help in the furtherance of their plans on arrival at the College.

The full program, available February 1, 1912, covers a wide range of subjects touching nearly all phases of the country-life movement. At this time an increasing number of organizations hold their annual meetings at the College. This the College welcomes in so far as its facilities will permit. (Extension Department in charge.)

COOPERATIVE CROP TESTS

(John L. Stone)

Some years ago, the College of Agriculture conducted many test fields in different parts of the State with sugar-beets, potatoes, alfalfa, and other crops. In recent years the pressure of other work has been so great that these tests have been lessened or discontinued. It is now proposed to revive them under the management of the Department of Farm Crops. In all cases, these tests on farms with crops and fertilizers will be worke out conjointly by the farmer and the College. It is desired to apply the best knowledge to the various local conditions and to aid the farmer in making tests and studies on his own account. Persons desiring such tests should write for printed instructions. For the next year it is desired to undertake these cooperative demonstrations with the following crops:

1. Trials of alfalfa in locations where it is not yet successfully grown.
2. Trials of sweet clover for forage and soil improvement where alfalfa will not grow.
3. Growing hairy vetch for forage, seed, and soil improvement.
4. Soybean culture for seed production and green forage for the silo.
5. Clover-growing on poor and acid soils in the hilly sections of the State.
6. Improvement of pastures.
7. County corn variety tests to determine the best varieties for given localities, for grain or silage.

Help by correspondence is offered farmers in questions relating to crop-growing and general farming. So far as time permits we will make personal visits to farmers having special problems in general farming.

AGRICULTURAL SURVEYS

In the long run, probably the most useful extension work in the localities is the taking stock of agricultural resources and the study of farming practices and conditions. We must know what the resources are in the way of soils, small streams, building materials, forests, and whatever else contributes to the success or failure of farming in the localities; we must know the local climate; the cost accounting of farms; the market facilities; the school and social advantages or disadvantages; the situation as regards labor, roads, housing conditions, methods of farming, and tendencies in the communities. It will be impossible to develop the most effective agriculture and country life without a knowledge of all the facts that underlie, and of all the elements that make for failure or success.

The College of Agriculture is undertaking surveys as a regular part of its extension work. So far as possible in the future, a soil survey of the region will first be made (in cooperation with the United States Department of Agriculture); and this will be followed the same season by a farm management survey along the lines of that which has been completed for parts of Tompkins County and reported in Bulletin 295. Thereafter, special studies or inventories will be made of different crops or live-stock or problems or situations, as funds will permit. Three counties have had farm-management surveys. There have also been fruit-growing surveys in several counties. It will be possible, with the present funds, to provide soil and farm-management surveys for only one county or part of one county each year. In 1912, the general survey work will be in Orange County.

FARM MANAGEMENT.

(G. F. Warren)

Farm Surveys.—In this work all the farms in a given section are visited and a record of a year's business is secured from each farmer. The chief aim of this work is to learn why some farms pay better than others. Certain types of farming, sizes of farms, kinds of soils, amounts of capital, etc., are found to be most profitable. An idea of the scope and results of this work will be obtained by reading Bulletin 295 which will be sent on request. Thus far Tompkins county, five townships in Livingston county, and five townships in Jefferson county have been studied. Only the Tompkins county work has yet been published. It is hoped that funds will be available to extend this work so as to study representative areas in each of the farming sections of the State.

Cost Accounting.—The Department of Farm Management has also started cost accounting work in cooperation with farmers. In this work the cost of producing various farm products and the profits from such production are determined. A representative of the College visits the farm, helps to take the inventory and start the accounts. The farmer keeps a diary of each day's work so that the man and horse labor can be charged to each enterprise. Occasional visits are made to the farm during the year to aid in the accounting work. At the end of the year, the inventory is again taken; the labor, use of buildings, use of land, etc., are charged to the different enterprises and the profit or loss on each enterprise is determined. Many other calculations are made from which it might be possible to suggest changes in the business so as to make it more profitable. The college keeps a copy of the results but considers these confidential. Such results are used in making up averages. We desire to start this work in cooperation with a few more farmers this winter. At present we cannot start the work with any farmers who do not live on their farms and who do not devote their entire time to regular work on the farm.

A new line of work to be started this year is somewhat similar to the above. This can be arranged in cooperation with any farmer in the State. The farmer will take an inventory of his stock, equipment, etc., once a year and keep a record of receipts and expenses. These will be sent to the College and we will calculate the profits and other results of the year's work from which it will often be possible to suggest changes that will make the farm more profitable. If the farmer keeps a diary of farm work, additional results can be calculated.

Farm Organization.—A limited amount of work is now undertaken in visiting and advising in the organization of farms. Systems of farm management are recommended that have been found profitable elsewhere under similar conditions to those under consideration. If time permits, a few farms operated by tenants or managers may be visited. On such farms, the management changes so frequently that no consistent plan is likely to be followed. The absent owner may plan many desirable things for the future, but he is rarely able to carry out his plans for a series of years, so that results from such farms are likely to be unsatisfactory.

FARM MECHANICS

(W. H. Riley)

The Department of Farm Mechanics, having to do with the general subjects of farm implements, engines, water power and supplies, lighting systems, farm surveying and mapping, laying out building foundations, sewage disposal, road construction and maintenance, and other mechanical and engineering problems, is prepared to give a limited amount of aid to farmers by means of lectures, demonstrations, personal consultation, and correspondence. The Department is now preparing a series of bulletins on farm engineering subjects. A reading-course lesson on "Knots, Hitches, and Splices," is in press.

SOILS

(E. O. Fippin)

The Department of Soil Technology is carrying seven lines of extension work in addition to a large amount of correspondence on all phases of soil management. These are the soil survey of the State, land drainage, investigation of the chemical composition of the important types of soil, the supply and use of lime on the soil, field plot tests, exhibits at fairs and other educational gatherings, and lectures.

The soil survey is conducted in cooperation with the United States Department of Agriculture. An average of one county is completed each season. Seventeen sections having a total area of 9921 square miles have now been covered. Not all of these embrace full counties, but it is now our policy to make the county the unit for such investigation. The areas covered include parts of Chautauqua, Wayne, Cayuga, Chemung, Broome, Onondaga, Essex and Suffolk counties, and all of Niagara, Livingston, Tompkins, Madison, Montgomery, Washington, Dutchess, Nassau, Monroe, Ontario, and Jefferson counties. The reports on the last three areas have not yet been published.

Maps are prepared of each area on a scale of one inch equal to one mile, using the topographic sheets of the United States Geological Survey as a base, which sheets represent the distribution of each type of soil by colors and appropriate symbols. Accompanying this map is a report of the region, the general agricultural conditions, the characteristics of each type of soil, and suggestions so far as the data will warrant of the crop adaptation of the different soils and changes in practice that would likely be beneficial. While the soil survey is in large measure a preliminary statement of conditions, it is basal to all other lines of investigation looking to soil, crop and farm business improvement.

Trained men are sent out upon request to assist in laying out systems of farm drainage. Where necessary, levels will be taken and from these, together with a study of soil, the character of the wetness and the prospective outlets, a map may be prepared showing the arrangement, size, and grade of the drains and the quantities of tile of different sizes required for complete drainage of the land. It is desirable at the outset to have a complete plan of drainage of the area, although the construction of some parts may be deferred for several years. Parties assisted are asked to pay the traveling expenses of our representative.

The chemical analysis of soil is useful, but the results must be interpreted in connection with many other facts connected with the soil. The soil survey is being followed up so far as possible by a careful study of the chemical character of the important types of soil recognized, and this systematic study takes the place of the examination of samples representing individual fields or farms. Here, also, the county is the unit of study and Tompkins is the first to be taken up.

As rapidly as facilities will permit, series of field plots will be established in different sections of the State on the important soil types and on different parts of the same type to study in a rigid way their response to fertilizers, lime, drainage, green manures, stable manures, crop rotation, etc. A preliminary study of the response of muck soil in the Wallkill valley to fertilizers, lime, and manure has been carried through three years and the results are now in preparation for publication.

The proceedings of the New York State Drainage Association covering the first two annual conventions (1910 and 1911) is now available for distribution. It makes a pamphlet of one hundred pages and consists of thirteen papers, six addresses and four prize essays, together with discussions covering many phases of drainage. The legal status of drainage for agricultural purposes is very thoroughly covered. The prize essays give impressive illustrations of the large profits from the practice of drainage. The Canadian method of developing drainage practice by government loans and by other provincial aid is described by Professor William H. Day, of the Ontario Agricultural College. The publication is free to members of the Association and may be had by other persons at twenty-five cents per copy. Address the President of the Association, Elmer O. Fippin, Ithaca; or Irving C. H. Cook, South Byron, N. Y.

HORTICULTURE

(John Craig)

Vegetable Growers' Associations—A cooperative movement between the vegetable growers' associations of the State and the Department of Horticulture is under way to provide a list of speakers qualified to discuss practical as well as technical questions relating to trucking and market gardening. These speakers are to be available for meetings of clubs and cooperative vegetable-growers' associations. A list of such speakers will be on file in the Department of Horticulture.

Survey of Trucking and Market-gardening Industry.—Initial explorations have been made in Long Island and in some of the special-crop districts of western New York. It is expected to commence this year a comprehensive survey of the vegetable-growing areas of the State to determine general conditions. This survey will be supplemented by intensive surveys of special crops and special-crop regions. This latter effort will naturally occupy several seasons.

Commercial Floriculture.—Plans are now maturing for a survey of the commercial floricultural industry of New York State. This is preliminary to an effort to aid the florists more directly than the Department has been able to do in the past.

POMOLOGY

(C. S. Wilson)

Visitation of Fruit Farms.—The increasing interest in the work of fruit-growing has created a demand for expert information in regard to the planting and care of orchards. In so far as time permits and when expenses are paid, the Department of Pomology will send a man to inspect fruit farms and suggest methods of management for the orchards.

Schools, Bulletins, and Correspondence.—The Department holds schools and demonstrations in apple culture and packing in the fruit-growing districts and at the College. A series of information bulletins, discussing the culture of each of the fruits, is being prepared, the first of which will be available March first. These will be sent on request. The Department is ready, through correspondence, to give advice in regard to the care of orchards, the pruning, spraying, cultivating, fertilizing, and marketing.

Renewal of Old Orchards.—A special feature of the extension in pomology is the renewal of old orchards. The Department wishes to get information about every neglected orchard in New York State, and will be glad to receive the names and addresses of persons having such orchards.

FORESTRY

(Walter Mulford)

The Department of Forestry is ready to supply a lecturer to farmers' institutes, granges, and other meetings, and to aid all organizations desiring lectures on forestry. The lectures will be illustrated with lantern slides wherever there are facilities.

It is planned to visit woodlots in various parts of the State to suggest methods of improving the woods. The Department will be glad to hear from woodland owners who might be interested in having someone from the Department look over their woods with the purpose of improving the wood crops.

Studies of the ratio of growth of timber trees in various parts of the State may be made next summer. This can be done only where cutting is in progress. The Department will be grateful to any parties, planning to do considerable cutting between June 1 and October 1, 1912, who will inform the Department that they will permit the growth studies on their land. Such studies cause no interference with logging.

ANIMAL HUSBANDRY

(H. H. Wing)

Supervision of Registry Records of Cows.—At the present time, fifty men are representing the College in supervising official testing of cows for registry, representing the Holstein, Ayrshire, Guernsey and Jersey associations. The field expenses are very largely borne by the herd owners but the work is supervised by the Department of Animal Husbandry; it is a form of extension work.

Cow-test Work.—Distinct from the above is the testing of cows for farmers and others for milk-production (rather than of blooded animals for registry under the auspices of official cattle clubs), to determine whether the animals are profitable. Cow-test associations are organized for such work; and the Animal Husbandry Department is ready to assist. Special printed instructions will be sent on application.

POULTRY

(J. E. Rice)

The Poultry Husbandry Department provides educational exhibits at poultry shows, fairs, Young Men's Christian Association gatherings, and other meetings. These consist of displays of models of houses and appliances, photographs, charts, samples of rations, and other equipment. A member of the Poultry Department is in attendance with each exhibit to give lectures and demonstrations on methods of killing poultry, grading eggs, making rations, judging for constitutional vigor, and the like. The purpose is to illustrate graphically the more important methods and appliances and to show the results of recent investigations with poultry, all with the object of instructing inquirers how to apply the methods at home.

Farm Visitation.—Members of the Poultry Husbandry Department visit farms to give advice in regard to locating and constructing poultry buildings, to give help in selecting breeding stock, to show methods of grading eggs, marketing poultry products, caponizing, and the like.

Breed-Testing Station.—The College has established a breed-testing station where flocks of ten fowls each are tested for egg-production. The fowls are trap-nested for one or two years and the eggs from the best are incubated, the chickens leg-banded and returned to the owner. By this means it is hoped to assist in line-breeding to increase egg-production and improve the quality of eggs of the flocks of many poultrymen in the State. Special instructions will be sent on application.

Poultry Farm Accounts.—The Department has prepared blank forms for taking an inventory of the poultry farm business and for keeping daily and monthly records, showing egg-production, cost of food, and loss of stock, with the hope of showing the profit or loss of the business and to assist in improving methods.

DAIRY INDUSTRY

(W. A. Stocking)

Members of the Department of Dairy Industry will take part in institutes and dairy exhibits and various meetings. One member of the staff will give special attention to field work, primarily among former students and in connection with butter and cheese factories. We hope in this way to enable the factory men to furnish better products, thus raising the grade of the dairy products of New York State and increasing the financial returns.

The Department of Dairy Industry will also aid in cow-testing whenever requested and so far as its means will permit, continuing the work of former years.

Educational Scoring of Dairy Products.—Samples of dairy products that are sent to the Department are scored free of charge, the results being returned to the owner with such suggestions for improving the quality as may be indicated by the examinations. The purpose of this work is to enable the butter and cheese makers and milk producers to improve the quality of their products.

PLANT-BREEDING

(H. J. Webber)

The extension enterprises of the Department of Plant-Breeding include three distinct types of work, as follows:

1. Extending a knowledge of breeding and seed selection among the farmers of the State by lectures at granges, farmers' meetings, and the like, by demonstration exhibits at the State and county fairs, and by courses of lectures and demonstrations to winter-course students.
2. Agents of the Department are planning to start a number of

cooperative experiments with farmers in several parts of the State, in the selection of corn and potatoes particularly. The farmers will be aided in making the selections until they become familiar with the methods and are able to do the work themselves, after which the work will be moved to other places and other farmers instructed.

3. The introduction of new and improved varieties of timothy, corn, wheat, oats and other crops originated in the experimental work. Six or eight new varieties of timothy, as many new hybrids and selections of oats, and two select strains of corn, have now reached a stage of development when they should be distributed among farmers as extensively as possible. Arrangements are being made to increase the seed as rapidly as can be done, and some general cooperative plan to introduce the varieties will be perfected and put into execution within the coming year.

ENTOMOLOGY

(J. H. Comstock)

Investigations of insect pests in orchards about the State are under way. Cooperative experiments in the control of insect pests will be conducted whenever satisfactory arrangements can be made. Provision has been made for placing a field assistant at East Bethany, Genesee County, to study the fruit-tree leaf-roller. A special study of onion-thrips is being made at Williamson, Wayne County. The cooperative study at Batavia of the life history and control of the codling-moth in Western New York will be continued.

PLANT DISEASES

(M. F. Barrus)

The Department of Plant Pathology is ready to answer promptly inquiries regarding the diseases of various crops and to give the best obtainable advice regarding their control; to demonstrate the value of various means of control suggested and when the results are evident to hold demonstration meetings; to make addresses upon request at meetings of horticultural societies, granges, farmers' clubs and other agricultural organizations; to make exhibits at State and county fairs and at meetings of agricultural and horticultural societies; to give instruction in plant diseases to winter-course and [illegible] school students and to other persons at extension [illegible]iculture conducted in different parts of the State and on such special trains as may be equipped for the purpose; to issue circulars of information regarding plant diseases, and to assist growers in various other ways in the control of plant maladies.

Several persons are stationed every year in orchards and other plantations in different parts of the State for the field study of plant diseases. These field laboratories are always cooperative with the growers. The laboratories will be described in a later issue of the Announcer.

HOME ECONOMICS

Martha Van Rensselaer

Extension work in the Home Economics Department comprises The Reading-Course for the Farm Home, The Homemakers' Conference held in connection with the Farmers' Week program, a winter-course of three months in Home Economics, and other activities.

In connection with the Reading-Course there have been organized through the State rural study clubs that use the lessons as a basis of study. Addresses are given by members of the staff, conferences are held with officers of the clubs, and questions are discussed by correspondence. Lectures are also given before granges, reading clubs, and other organizations.

The Homemakers' Conference is organized with the winter-course students and ex-members of the winter-course as a basis for membership. In addition, housekeepers throughout the State are invited to become members of the Homemakers' Conference, with a week's program of lectures, conferences, demonstrations, and exhibitions of work at the college during Farmers' Week. Special information on the Conference may be secured on application.

RURAL ECONOMY

(G. N. Lauman)

The Department of Rural Economy will begin this year a comprehensive study of cooperation with special reference to the State of New York and its agricultural needs. The demand for information calling for historical, general, economic, and business data concerning cooperation increases from year to year. Much valuable data must be collected from all over this State, other States, and foreign countries in order that accurate information may be made available at some central point, and its salient features presented to our farmers and cooperators. Both economic and social cooperative efforts will be studied, and we hope to offer reliable data to those who wish to enter any cooperative field.

This is a new field for the colleges of agriculture, and correspondence from informed and interested persons is solicited.

RURAL EDUCATION

(Alice G. McCloskey)

The extension work of the Department of Rural School Education for the current year is as follows: 1. To furnish teachers with accurate, progressive subject matter for instruction in Agriculture. 2. To help to direct the outlook of rural boys and girls in two ways: in agricultural economy, which leads to prosperity; in sympathy with their country life surroundings, which leads to happiness and contentment. 3. To correspond with persons in the State who are directing education in order that the schools may be readily reached. 4. To aid all supervisors of rural schools in their efforts to promote agricultural education. 5. To furnish the teachers in normal schools and training classes with up-to-date subject matter in agriculture and nature-study. Many of the rural teachers of the future will be graduates of such schools. 6. To keep in touch with city superintendents. 7. To aid teachers who desire to give instruction along some special lines of agriculture not outlined in the State Syllabus. 8. To interest all rural school children in Corn Day, now an established annual event in many schools. The purpose of this movement is to improve the corn crop of the State. Other crops will be considered later. 9. To conduct among the children contests in garden making, farm crops, poultry raising, bread making, and the like. 10. To encourage the children to write letters relating to rural problems to the College. This will interest them in a higher institution of learning and teach them to consult persons trained along special lines in Agriculture. 11. To furnish speakers on educational topics at meetings of educators and grangers. 12. To know through correspondence or personally at least three spirited grangers in each county through whom any appeal for rural education can be made. These persons should receive all of our publications, reports of work, and the like, and be called into council occasionally. In January a circular letter will be sent to every county grange requesting nominations made in each for three persons who will act in cooperation with those of other counties in furthering the interests of rural education. 13. To reach in as personal a way as possible rural boys between the ages of sixteen and twenty-two. Preliminary steps have been taken to form a Boys' Agricultural Outlook Club for the purpose of directing the energies of the boys toward a more progressive life. 14. To reach rural girls between the ages of sixteen and twenty-two. We may not have funds during the present year to do special work with the boys and girls but hope to get names and addresses of all who are interested, that we may begin vigorous work in September, 1912. 15. To keep in touch with agricultural education in other states. 16. To keep in touch with literature on agricultural education. 17. To collect and exhibit in the Rural Schoolhouse on the Campus standard school equipment for agricultural instruction. 18. To cooperate in the movement to develop country life recreation. 19. To do some investigational work each year among rural schools that we may have knowledge of true conditions. 20. To further in every way possible the movement for the improvement of school buildings and school grounds. 21. To be ready to promote any movement that seeks to redirect country life through the children of the State. The touch with school children is such that in one mail we can send a message to 300,000 children in New York State.

EXTENSION OF EXPERIMENT STATION WORK

The Cornell Experiment Station (which is a part of the College of Agriculture) does not engage in extension efforts; but the Extension organization of the College is able to project the work of the Station to the people of the State and to use the findings and results in the localities and in its demonstration enterprises. The findings are made available also through bulletins.

OTHER EXTENSION WORK

Excursions.—The College is glad to receive excursions from granges, farmers' clubs, and other organizations. Meeting places and other facilities are provided for such agricultural organizations as may wish to hold meetings here. The College is always open to visitors. Persons applying at the Public Office will be provided with a guide.

Rural School Picnic.—During the latter part of May each year, the rural school children of Tompkins County gather at the College of Agriculture for the Annual Rural School Picnic. Contests between individuals and schools in baseball, running, jumping, tug-of-war, trials of skill, and other games adapted to rural communities, make a fine program for out of door play. To this is added such instructional features as talks and demonstrations on Nature-Study, using as materials birds, desirable types of farm horses and other farm animals. A general visit to the buildings and grounds of the University is always a feature. This idea of recreation and education for a rural community suggests to other communities similar enterprises. All persons, schools or organizations interested are welcome on this or any other day by arrangement.

Employment.—The College desires to maintain a list of the most successful farms in New York State, managed by fair-dealing men, where students desiring summer work, either for experience or to earn money to apply on college expenses, may be placed. To apply for a place on this list and for information concerning the classes of students available, address the Secretary, College of Agriculture.

The New York State Experimenters' League is an organization composed of the former students of the College of Agriculture and such other persons as desire to bond themselves for the purpose of making certain tests of seeds, fertilizers, breeds and other like problems, communicating with one another during the year, receiving the personal advice of some traveling expert, and meeting for further comparison of field notes at the College during Farmers' Week.

Special Lectures.—Special lecture courses and individual lectures are given, upon request, by members of the College faculty at such times and places as can be arranged, before granges, farmers' reading-course clubs, and other agricultural societies, schools and public assemblies; and at farmers' institutes in cooperation with the State Department of Agriculture.

Rural Church Conference.—The College of Agriculture is interested in all worthy institutions that contribute to the development of country life, and is glad to co-operate with them. There are calls for assistance from rural schools, granges, and other farmers' organizations. In like manner there has come a demand from rural churches for co-operation in the solution of some of the problems that result from their rural environment. To meet this there is held, during the annual Farmers' Week, a conference of country pastors and rural social and religious leaders of all or any denominations to discuss the questions that particularly affect the work of rural churches. Topics of live interest to rural religious and social workers are presented briefly by persons who have given them special study, after which they are discussed by the conference. The next Rural Church Conference will be held at the College on February 20, 1912, on the general topic of present-day factors in successful country church work. For additional information, address the Secretary, College of Agriculture.

Rural Leaders' Training Conference.—For several years the College has been urged to establish a school for social workers in rural communities. To meet this demand there was held last July the first of a series of training conferences for rural leaders. The school lasted for eight days, and consisted of three regular class periods in the morning, two in the afternoon, and one each evening. The subjects considered were the psychology of leadership, the rural mind, rural sociology, the country community, and community consciousness, health, education, industry, and socialization. A more advanced course will be held next summer, probably June 25 to July 5, inclusive. Additional attention will be given to the questions of leadership, the country community, and rural sociology, and a new course in rural economics will be added. The Conference is intended for rural ministers, school principals and teachers, editors, secretaries of rural Young Men's Christian Associations, officers of granges and men's brotherhoods, and other active rural workers. The Secretary to the College of Agriculture will supply further information on request.

Students' Association.—The Students' Association of the New York State College of Agriculture is an organization of all present and former students of the college for the promotion of agriculture. This year it is giving particular attention to rural improvement work. By the organization of local or county branches it is planned to extend its work through co-operation in the holding of extension schools, co-operative experiments, farm demonstrations, lecture-courses, reading-courses, and the like. An annual meeting is held during Farmers' Week. The next annual meeting will be at the College on February 21, 1912. The Secretary of the Association may be addressed at the College.

State and County Fair Exhibits.—The College, through an Educational Exhibit and Information Bureau, cooperates with the State Fair each year, and with as many county and town fairs as practicable.

The Publications of the College are now reorganized and made more extensive, and with the enlarging staff and solidification of the work they will increase in number. They are free to residents of New York State on request, so far as the size of the editions will allow. The several kinds are indicated in this Announcer under the headings Reading-Courses, Experiment Station Bulletins, and Rural Education.

Bureau of Information.—Questions pertaining to farm problems are referred to the various Departments of the College for answer.

Correspondence on agricultural and rural subjects, to whomever addressed, is promptly distributed to the proper departments and full replies are made.

Demonstrations.—Contact teaching is essential to convey clear conceptions. To this end, demonstrations on farms, in barns, or wherever the actual work is in progress, may be conducted to show how crops, animals, or methods may be economically improved, as, for example, demonstrations on apple packing, plant disease control, poultry killing, picking, packing and egg grading, scoring market milk, butter, cheese, dairy cows, farm horses and many others. For further information address Extension Department.

PUBLICATIONS

READING-COURSE FOR THE FARM

The first and second Lessons in the Poultry series of the Reading-Course for the Farm are on the subject of Incubation.

They will be followed by Lessons on feeding young chickens and on brooding. These four Lessons deal with the most important problem in the successful keeping of poultry, namely, the hatching and rearing of chickens for market or to renew the flock. Successful hatching and rearing are of vital importance because they are more exacting and more difficult to do, more uncertain as to results, and more far-reaching in effects, perhaps, than any other two factors in poultry husbandry.

The great importance of successful hatching and rearing of chickens is due to the comparatively short normal and profitable life of the domestic fowl and the consequent necessity for the renewal of the flock by the replacing of old stock with young stock. As a rule, a poultryman should rear to maturity each year, i. e., to laying age, in case of pullets, more chickens than he has fowls on his farm. One year with another, one half of these chickens will be cockcrels. This will permit rigid selection of only the better pullets to be kept to replace more than one half of the flock of hens. Thus each year one half or more of the flock will consist of early hatched pullets and nearly one half of hens. The pullets should be kept primarily for heavy early winter laying and the hens for breeding purposes.

The profitable life of a flock generally is not more than two or three years at best. Hence, failure each year to rear early hatched, vigorous pullets to renew the flock will make it necessary to keep unprofitable old hens or to purchase pullets at high prices, neither of which is desirable.

The first Lesson in the Poultry series, published Nov. 15, deals with the principles of natural and artificial incubation and points out how, when, and where each method can be used to advantage. The hen hatching and brooding is advised when only a few chickens are to be reared annually, and when a suitable variety of fowl is to be kept. Hatching by incubator is recommended in nearly all instances in which several hundred chickens are to be hatched each year. In view of the fact that a very large number of types of incubators are on the market, an effort is made in the Lesson to discuss the principles involved in the construction and preparation of a few of the more important types. The various parts of an incubator are named and described and their purpose discussed in order that a person may operate a machine according to principles rather than by rule alone.

Emphasis is laid on the fact that successful hatching depends on several important factors and not alone on the machine, as for example, the skill of the operator, the place in which the machine is kept, and the use of eggs having strong hatching quality. Comparison is made between several types of thermometers. It is shown that the success of a hatch, other things being equal, may depend on the accuracy of the thermometer or the way in which it is used. The temperature-reading of similar thermometers may [illegible] several degrees the first week of incubation, depending on whether the mercury bulb is down between the eggs, on top of the eggs, or hanging above the eggs. In view of the inaccuracy frequently found in thermometers, directions are given for testing them.

Because of the injury each year to hen-hatched or hen-brooded chickens by body lice, directions are given for making a lice powder costing less than five cents per pound.

A labor-saving home-made device for conveying oil to the incubator cellar is shown and described.

The second Lesson in the Poultry series is to be published Dec. 15. It deals with the operation of incubators and methods of disinfection. Recent investigations have shown that the thorough disinfection of incubators is a necessary precaution against the spread of diseases which cause heavy mortality among young chickens. It is recommended that one part of either creoline or zenoleum or crude carbolic acid to nineteen parts of water be thoroughly mixed and sprayed in the form of a fine mist over all the interior parts of the machine. The incubator should be thoroughly aired and dried out before it is used.

A handy portable egg-testing device primarily for use during the daytime is described and shown.

READING-COURSE FOR THE FARM HOME

The second bulletin to be published in the Reading-Course for the Farm Home is a continuation of the subject of the care and feeding of the child treated in the October Lesson.

The bulletin opens with a discussion of the problems of feeding infants and of the advantages to the child both immediate and final of being breast-fed. "The death rate among artificially fed babies is seven to ten times as great as those fed from the breast." The question of artificial feeding is considered, and various types of artificial food are discussed. The conclusion reached is that when a child must be fed something other than its mother's milk, the food that gives the best result is the milk of some other animal. The reasons for this are emphasized. A simple method is given of adapting cow's milk to suit the needs of the baby, including directions for the care of bottles, nipples, and all apparatus and materials commonly employed. The close relation of successful feeding to a clean milk supply is shown.

The principles governing the right feeding of the child after weaning and through the growing years are explained. Some suggestive meals are given to show the types of food best adapted to children of different ages. "The two mistakes most often made in feeding children are giving food unsuited to the stage of the child's development and permitting children to eat between meals and at irregular hours."

The uses of sugar, highly flavored foods, fruits and vegetables, milk, meat and eggs in the child's dietary is discussed. Right mastication of food is shown to be of importance to the development of the child. The necessity of caring for the teeth is emphasized and the wrong use of drugs as cure-alls is deplored.

The principles of nutrition are the same everywhere; but in the questioning, correspondence, and handling of the subject in the Reading-Course, the work is applied directly to rural conditions.

AVAILABLE STATION BULLETINS

The following bulletins and circulars of the Cornell University Agricultural Experiment Station are available for distribution to those residents of New York State who may desire them:

Bulletins:

154. Table for Computing Rations for Farm Animals.
219. Diseases of Ginseng.
257. Defects in American Cheddar Cheese.
262. Apple Orchard Survey in Niagara County.
265. Certain Seed-Infesting Chalcis-Flies.
266. The Black Rot of the Grape and Its Control.
267. Fertilizing and Seeding Experiments with Root-Crops.
270. Fancy Cheese for the Farm and Factory.
272. Fire Blight of Pears, Apples, Quinces, etc.
273. The Effect of Fertilizers Applied to Timothy on the Corn Crop Following It.
274. Building Poultry Houses.
276. Peach-Leaf Curl.
277. The Principles of Brooding—The Improved New York State Gasoline-Heated Colony-House Brooding System.
281. Butter Moisture-Tests.
282. Seven Methods of Feeding Young Chickens.
283. The Control of Insect Pests and Plant Diseases.
284. Labor-Saving Poultry Appliances.
285. Cause of "Apoplexy" in Winter-Fed Lambs.
286. Snow-White Linden Moth.
288. Spray Injury Induced by Lime-Sulfur Preparations.
289. Lime-Sulfur as a Summer Spray.
291. The Apple Red Bug.
292. Cauliflower and Brussels Sprouts on Long Island.
293. The Black Rot Diseases of Grapes.
294. A Heretofore Unnoted Benefit from the Growth of Legumes.
295. An Agricultural Survey of Tompkins County.
297. Studies of Variation in Plants.
298. The Packing of Apples in Boxes.
300. The Cabbage Aphis.
301. Sweet Pea Studies—I.
302. Notes from the Agricultural Survey in Tompkins County.
303. The Cell Content of Milk.
304. Substitutes for Skimmed Milk in Raising Calves.
305. The Cause of "Apoplexy" in Winter-Fed Lambs.

Circulars:

1. Testing the Germination of Seed Corn.
2. Fungicides.
3. Some Essentials in Cheese-Making.
4. Soil Drainage and Fertility.
5. Suggestions from a Survey of the Trucking Region of Eastern Long Island.
6. Suggestions concerning treatment of Seed Corn with Deterrents against Crows.
7. The Relation of Lime to Soil Improvement.
8. The Elm Leaf-Beetle.
9. Orange Hawkweed or Paint Brush.
10. Propagation of Starter for Butter-Making and Cheese-Making.
11. Helps for the Dairy Butter-Maker.

ANNOUNCER
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L. H. BAILEY, Director

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

SUMMER SCHOOL IN AGRICULTURE

The object of the Summer School in Agriculture is to train persons who desire to teach agriculture, including nature-study, home economics, and entomology. The courses are open not only to teachers, however, but also to other qualified persons who may wish to avail themselves of the opportunities offered. The courses will have much value for those who desire to put the information into immediate practical use on the farm or in the garden. Registration for the School will be on Saturday, July 6, instruction beginning on Monday, July 8. The School will close on Friday, August 16.

There is no examination for admission to the Summer School in Agriculture. Each person, however, must satisfy the instructor in charge of any course that he is qualified to pursue the work of that course. Any registered student in the Summer School may visit other classes than those for which he is specifically registered. Tuition is free to residents of New York State. Non-residents will be charged a tuition fee of $25. Students in the Summer School may receive certificates of attendance and of work satisfactorily performed. University credit is given in certain of the courses.

In addition to the regular classroom work, there will be evening lectures on topics of general interest throughout the school. Musical recitals will be given on Tuesday and Thursday evenings in the Sage Chapel. The special evening lectures arranged for the University Summer Session are open to all students in the Summer School in Agriculture. The University Library and the library of the College of Agriculture will be open throughout the period of the School.

Outside the formal courses, the students will have opportunity to consult more than one hundred experts in the College of Agriculture, representing practically all the great lines of country life work. It is designed to make special arrangements whereby teachers and others may have private conferences with members of the staff for the purpose of receiving aid in their personal problems. To many persons this feature may be worth more than the regular class work.

Courses of instruction.—The courses of instruction are announced in four distinct groups or schools—(1) agriculture, (2) nature-study and elementary agriculture, (3) home economics, (4) entomology. Persons in the Summer School may specialize in any one of these groups or may elect such courses from any of them as they may be able to schedule and are qualified to pursue. The courses in agriculture and in nature-study and elementary agriculture are designed to meet the requirements of the New York State syllabus for secondary and for elementary schools.

In all of the courses laboratory and field work supplement the lectures. Emphasis is laid on individual contact and practice. Ithaca, in the midst of a farming region, is particularly well situated for field work.

Below, in briefest possible outline, the courses are listed and subject matter indicated.

AGRICULTURE

In this group a number of brief courses are offered covering the general field of agriculture. The following courses in soils, animal husbandry, farm crops, entomology, poultry husbandry, vegetable gardening, and weather continue throughout the first three weeks, and the courses in agricultural chemistry, dairying, farm management, plant diseases, pomology, farm mechanics, and floriculture throughout the second three weeks. The subjects are scheduled in such a way that a person can take all of them if desired; or one or more subjects may be omitted and subjects elected from the other groups or from the University Summer Session if desired. No university credit is allowed for this work, but certificates are given.

1. **Soils.**—The formation and classes of soils, tilth, moisture, amendments, fertilizers and manures, soil biology, and soil management.

2. **Animal Husbandry.**—The principles of feeding horses and dairy cattle, principles of breeding animals, and the historical development of the leading breeds of horses and dairy cattle. Laboratory work with the animals.

3. **Farm Crops.**—Classification of farm crops, importance of various classes, and classroom and laboratory study of the leading types in New York State.

4. **Economic Entomology.**—Study of common insect pests of farm, garden, and orchard, and measures of control. Lectures illustrated by specimens, charts, and lantern slides.

5. **Poultry Husbandry.**—Study of the breeds of poultry, feeding, incubating, brooding, breeding, poultry-house construction.

6. **Vegetable Gardening.**—Discussion of problems and methods peculiar to vegetable gardening, the planning and management of the home garden, vegetable crops from home and commercial standpoints; garden and greenhouse work.

7. **Weather, Climate, and Crops.**—The fundamentals necessary to an understanding of the earth's atmosphere; distribution and relation of temperature, pressure, winds, and moisture; principles of weather forecasting; frosts and methods of protection; relation of weather and climate to agriculture.

8. **Agricultural Chemistry.**—Relations of chemistry to agriculture, the sources of fertilizing materials, their preparation for use, and a study of the various forms of lime.

9. Dairying.—Bacteria in relation to dairy products; milk testing, milk composition, butter-making, cheese-making.

10. Farm Management.—The more important principles of farm management; types of farming; cropping systems; farm accounts; farm layout; marketing; successful farms.

11.—Plant Diseases.—The more common diseases of fruit and other crops, and means of control.

12. Pomology.—The principles and practice of fruit-growing; methods of propagation, budding, and grafting; soils; varieties and planting plans; cultivation, cover crops, fertilization, spraying, and pruning; picking, grading, and marketing of fruit.

13. Farm Mechanics.—Study of rope splicing, belt lacing, the plow, grain binder, and gasoline engine. Class work arranged to show methods of giving instruction in farm mechanics.

14. Floriculture.—The use of flowers in and around the home; flower crops for the farmer; flowers from a commercial standpoint; floricultural opportunities. Practice in propagating, potting, shifting, and care of plants.

The following courses, each continuing for six weeks, are intended for persons desiring special training in the subjects. They are very much more extended than those above given. Each will occupy one third to one half the student's time. University credit is allowed for the work.

1. Principles of Soil Management.—A fundamental course dealing with the origin, composition, and properties of soils with particular reference to their management in crop production. Laboratory practice designed to demonstrate fundamental physical relations.

2. Agricultural Chemistry.—A general course treating of relations of chemistry to agriculture and dealing with the composition and chemical properties of plants, soils, fertilizers, feeding-stuffs, insecticides, and fungicides.

3. Agricultural Chemistry.—Laboratory course supplementing preceding course.

4. Farm Crops.—Study of principal cereal and forage crops in New York State—distribution, important soil and climatic requirements, and cultural methods.

5. Principles and Practice of Feeding Animals.—General principles of animal nutrition; study of feeding standards; the common grain and commercial feeds; formulation of rations, etc.

6. Principles of Animal Breeding.—Outline of the principles of heredity as applied to breeding of animals; study of animal form; origin and formation of breeds; crossing and grading; registration; records and pedigrees.

7. Poultry Husbandry.—Study of breeds of poultry; poultry-house construction; feeding; marketing; diseases; incubation; brooding; breeding; judging; grading; packing, etc.

8. Milk Composition and Tests.—Secretion and composition of milk; samples; use of lactometer; Babcock fat test, acid tests, moisture test, salt test, preservative tests.

9. Plant Diseases.—A fundamental course treating of the common diseases of cultivated plants, their nature, cause, and control.

10. Plant Physiology.—The topics include absorption, metabolism, relations to environment, growth, reproduction, and propagative process.

NATURE-STUDY AND ELEMENTARY AGRICULTURE

1. General Nature-Study—(a) Observations on the habits and haunts of our common birds, the toad, frog, salamander, turtle, and other reptiles, common fishes, and of common wild mammals, including squirrels, chipmunks, mice, moles, woodchucks, etc.; the natural habits and adaptations of some domestic animals, including the horse, cow, sheep, and pig; life histories of butterflies and moths, and other insects of orchard and garden, aquatic insects, and honey-bees.

(b) Field observations on the life histories of the plants of the garden, open fields, moist ravines, marshes, and woods; relation of plants of garden to insect visitors; the character, habits, and fruit of common trees, especially fruit, nut, evergreen, and shade trees.

(c) Lectures on the foreging work, including also the use of this material in the schoolroom, and the building and maintaining of breeding cages and aquaria. Study of literature bearing on these subjects.

2. Training Course in Natural History Method.—Careful and extended work in a few selected natural history subjects—first three weeks on pond life, second three weeks on relations between flowers and insects. Individual work required and individual attention given.

3. Elementary Agriculture and Nature-Study.—Pedagogical work in elementary agriculture and nature-study as outlined in the New York State syllabus. Subject matter will be presented and schoolroom methods of conducting the lessons will be demonstrated. The fundamental educational value and economic importance of school work in soils, animal husbandry, farm crops, gardening, fruit growing, poultry, forestry, bird study, and the like, will be discussed. Simple apparatus suitable for use in schools will be considered; also books for the school library.

4. Rural School Education.—A study of rural school conditions, the field of agriculture in education, relations of school and community, teachers' associations, farmers' institutes, extension work, the rural schoolhouse and grounds, the rural teacher, rural library, etc.

5. School Gardening.—Lectures on school gardens in city and country; practical work on soils, preparing the ground, planting, caring for the garden, harvesting, and the like; exercises in judging garden plats; discussion of trees, vines, shrubs, and herbaceous plants suitable for school garden; a child's home garden; window boxes; the nature-study of the garden; literature.

6. Textbook Work in Agriculture.—To enable teachers intelligently to use a textbook in Agriculture in high school or in seventh and eighth grades. Textbook study and demonstrations.

HOME ECONOMICS

A. Foods.—The sources, composition, and characteristics of foodstuffs; selection of foods and methods of preparing them; food preservation; comparative nutritive values and cost of various foods; selection, planning, and serving well-balanced meals.

B. Human Nutrition.—Methods of investigating dietary problems; practical means of applying scientific principles in planning dietaries; special problems of nutrition, as in infant feeding and cases of abnormal nutrition.

C. Home Economics.—Domestic factors in cost of living, waste, extravagance, standards of living, prices, marketing, family budgets, distribution of income, savings, domestic service.

D. Household Sanitation.—Household bacteriology; cleanliness of soil, air, water, food; disposal of waste; insect pests, infection, immunity, methods of disinfection; good housekeeping in relation to public health; physical exercise and rest.

E. Extension in Home Economics.—Principles of extension work with special reference to rural communities; organization, material to be presented, presentation, speaking, writing.

ENTOMOLOGY

A. General Entomology.—An introductory course dealing with the biology, habits, economic importance, and relationships of insects.

B. Laboratory Course in the Morphology and Classification of Insects.—Study of the external anatomy of typical insect forms; the collecting, mounting, and classifying of representatives of all the orders and the chief families of insects.

C. Research.—Opportunities will be offered for advanced work and research in various phases of entomology.

Seminary.—The work of an entomological seminary is carried on by the Jugatae, an entomological club that meets for the discussion of current literature and of the results of investigations.

The following special afternoon courses, of one week each, will also be offered. Emphasis will be placed on general principles and methods of work. Visitors may enroll for any part or all of the series:

1. **Aquatic Insects.**—Lectures, laboratory, and field work in the Renwick marshes, illustrative of the biology of aquatic insects.

2. **Aquatic Insects,** with special reference to their utilization as fish food. The laboratories and experimental fish hatchery will be utilized for this course.

3. **Economic Entomology.**—Its problems and methods.

4. **Insects and Diseases.**—A study of the rôle of insects and their allies in the transmission and dissemination of diseases of man.

5. **Photography and Lantern Slide Making as an Aid to Entomological Work.**

6. **Systematic Entomology.**—Designed to familiarize the student with special methods of collecting and preparing insects for the cabinet.

ADDITIONAL ELECTIVE COURSES

The regular Summer Session of Cornell University, which is in session at the same time, offers a great variety of courses, any of which may be elected by students in the Summer School in Agriculture on the payment of certain fees. Particular attention is called to the following: Education, psychology, economics and social science, music, physics, chemistry, geography, geology, botany, zoology, physiology, and industrial education, including handwork. A course in meteorology and climatology, in addition to the brief course in the School in Agriculture, continues throughout the Summer Session.

For complete catalog describing the summer courses in full, address The Secretary, College of Agriculture, Cornell University, Ithaca, N. Y.

GENERAL ANNOUNCEMENTS

OAT AND WHEAT BREEDING

(H. H. Love)

For the past five years the Department of Plant-Breeding has been conducting experiments in the improvement of oats and wheat. In the work with oats two lines of improvement have been followed, namely, selection and hybridization. The selection work has consisted in finding superior plants in certain varieties and increasing the seed of these plants until enough was obtained to make a test of the yielding power. The work of hybridization has been an attempt to cross two varieties or strains that possessed desirable qualities, with a view to getting the good qualities of both combined in one strain.

The work of increasing the seed has gone steadily on and for the past two years comparative-yield tests have been made, when the new sorts have been compared with some of the well-known commercial varieties. Among the latter were such well-known varieties as Silver Mine, Lincoln, Swedish Select, Danish Island, Welcome, and a few others. The average yield for the past two years has been 59 bushels per acre of weighed grain for the ten best hybrids, 58.1 bushels per acre for the ten best selections, and 50.8 bushels per acre for the eight best varieties. These yields are the results of several tests, each lot being repeated about twenty-one times. Some of the best strains are to be tested out in eight or nine different parts of the State this year and the kinds that maintain their high yield will be increased and distributed to the farmers as rapidly as possible.

The work with the wheat is progressing very rapidly. Some new strains have been secured, which for the past two years have yielded three to eight bushels per acre more than the varieties from which they were selected. These will be tested out in different parts of the State and the better sorts increased so that farmers desiring seed may obtain some of the high-yielding strains.

DEPARTMENT OF FARM PRACTICE AND FARM CROPS

(J. L. Stone)

Employment.—Numerous students in the College of Agriculture desire to obtain work on farms during the vacation period, about June 15 to September 15. Some of these students are experienced farm boys who desire the work in order to earn money for college expenses; more of them have had little experience in agriculture and desire the work mainly for the experience, with payment according to services rendered. There are also some seeking permanent positions. Farmers who may be able to use such help should address the Department of Farm Practice and Farm Crops.

Cooperative experiments in farm crops.—Persons who desire to make experiments in cooperation with the Department of Farm Practice and Farm Crops should not delay writing for particulars. A number of farmers have already agreed to experiment with alfalfa and soy bean culture. The growing of white sweet clover where alfalfa growing seems impossible, should be tried by a large number of experimenters. The white sweet clover is a biennial that is capable of vigorous growth in adverse soil conditions; it produces forage that domestic animals learn to like and thrive on; it has large roots that are very good humus-making material; it is a nitrogen-gatherer and soil-improver. A very simple experiment may show how to succeed with it from the start. Success with sweet clover may lead to future successes with alfalfa.

Variety tests of corn have proved very popular in Ohio and in some of the Western States. The behavior of different varieties when grown side by side in the field always makes an interesting study. New York State has numerous varieties of both flint and dent corn. Some of these varieties have a limited adaptation to the soils and the climate, while others might be more widely cultivated if their merits were known. Corn growing is very important in the best dairy communities. The best varieties to raise for the crib or for the silo should be determined in each locality by making simultaneous variety tests on three or more farms in the same region. Those who unite to carry out such an experiment will be benefited by the cooperation; the neighborhood will profit by the results and the College of Agriculture will gain valuable information concerning the varieties of corn grown in the State. Details of the plan will be sent to those requesting it.

Experiments with alfalfa, winter vetch, red clover, and the treatment of pasture lands are available for persons interested in these subjects.

CHESTNUT BARK DISEASE

(Donald Reddick)

An extremely destructive disease that is making rapid advances in the State is known as chestnut bark disease. It was first noted as serious in 1904 in the vicinity of New York City. Since that time it has spread rapidly in all directions.

In winter the disease may be recognized as follows:

1. By sunken or swollen cankers or bosses, reddish brown in appearance, on limbs or trunks of the trees.

2. By an abundant development of suckers at the base of cankers or the base of the tree, noticeable from a distance, especially when leaves are off.

3. By clinging of burrs.

4. In summer, in addition to the above indications, the disease may be recognized by the dwarfing, withering, or dying of leaves on branches, in the crown, or of the whole tree.

During the past summer W. H. Rankin, of the Department of Plant Pathology, cooperating with the United States Department of Agriculture, the State Conservation Commission, and the State Department of Agriculture, has made a survey in the State in order to determine the present extent of the disease, with the purpose of putting into effect some quarantine method of preventing its further spread. The survey has revealed a startling condition of affairs. The disease is distributed generally throughout the Hudson River valley and in the vicinity of Lake George, and it is thought that nothing can be done to save the remaining trees and that the chestnut will soon be exterminated in these regions.

A belt of spruce forest, free from chestnut, reaching south from Hamilton county to Delaware county, has served as a natural barrier against the disease. This spruce belt, however, runs out in Sullivan county and through that county chestnut is common. The disease has spread westward along the Delaware River and infected trees have been found as far west as Binghamton.

Should the disease spread as rapidly in the next five years as it has in the past, there will be few healthy chestnut trees left standing in the State by 1916. If only our own State were concerned, it would be a relatively easy matter to make a stand against the advance of the disease somewhere in Sullivan or Delaware county. But a great deal depends on conditions in the State of Pennsylvania. An extensive survey is being made in that State, also, but the situation in western Pennsylvania is not yet fully known, and cannot be known until the leaves come this spring. A Chestnut Blight Commission with almost unlimited power has been appointed in Pennsylvania and a liberal appropriation granted by the Legislature to fight the chestnut bark disease. It is hoped there that the disease may be confined to regions east of the Susquehanna River. If such an effort proves feasible, it is highly important that New York State cooperate in attempting to keep the disease within its present known boundaries.

A careful study of the fungus causing the disease is being made, as there are a number of important points yet unknown about its habits. The Department is particularly anxious to receive and examine any suspicious cankers on chestnut trees from central and western New York. A microscopic examination will be made and results of the examination reported.

Any one interested in a more detailed description of the disease, with an outline of the proposed method of control, should obtain from the United States Department of Agriculture a copy of Farmers' Bulletin No. 467, which will be sent on request. Address The Secretary, of Agriculture, Washington, D. C.

DEPARTMENT OF DAIRY INDUSTRY

(W. A. Stocking, Jr.)

Mr. H. L. Ayres has commenced his field work for the Dairy Department. The plan is for him to give special attention to the former students of the Winter Dairy Course who are now employed in dairy plants in New York State. Frequently these men meet problems that are difficult to solve and Mr. Ayres will be glad to give any assistance possible. He has had a very broad, practical training in all lines of dairy industry, having operated a creamery for a number of years and having been superintendent of the manufacturing work in the Dairy Department at Cornell University for the past seven years. He has also taught butter- and cheese-making and dairy mechanics in the Winter-Course.

The Department is planning to conduct some special cooperative work with a few dairy plants where the management desires to improve the business. It is believed that the future of New York dairying lies in making high-grade products that can be sold at top prices. Mr. Ayres will arrange for cooperative work with a few plants whose managers desire to improve the quality of their output and to secure a special market.

Persons wishing assistance in any line of dairy manufacturing should communicate with the Department of Dairy Industry at Ithaca.

DEPARTMENT OF POMOLOGY

(C. S. Wilson)

As soon as the frost is out of the ground, ten acres will be added to the Department's fruit plantings. The fruits to be planted this spring will include quinces, peaches, cherries, plums, and grapes. For each of these there will be a commercial orchard and a variety test plat. The commercial plantings will be used to study and to illustrate the best methods of orchard management. In the variety plats the work will be to study varieties old and new, in order to determine which kinds are best adapted to home use and to commercial plantings. Owing to the latitude and elevation of the farm, many of the less hardy varieties will winterkill, so that these tests will be in the nature of a test for hardiness, also. This applies especially to the peaches and the grapes. After these plantings are established and the hardy varieties proved, it is hoped to develop varieties or strains better adapted to our severe winter conditions.

If any fruit-growers have new varieties that they consider worthy of trial, the Department will be glad to receive specimens and to place them in its trial plats.

STATE GRANGE SCHOLARSHIPS

The State Grange has appropriated $600 to pay for twelve scholarships in the New York State College of Agriculture at Cornell University. These scholarships will be awarded on competitive examination based on a general knowledge of arithmetic, geography, history, and English composition.

Examinations will be held on the third Saturday in June in each county. The examinations will be conducted by the Master of Pomona Grange and a committee of two whom he will choose, at such place in the county as he may designate. Applicants must be seventeen years of age or older, and must be members in good standing of any subordinate grange. Persons desiring to enter this competition should apply to the Master of Pomona Grange in his or her county (or, in case the county has no Pomona, to the county deputy). The Pomona Master (or deputy) will then make requisition on the secretary of the State Grange for sufficient examination papers to supply his applicants, and papers will be sent to him, sealed. On the day of examination, these papers will be opened by the applicants in the presence of the committee; the questions will be answered, placed in sealed envelopes, and sent on the same day to the secretary of the State Grange. The papers will then be examined and graded by the undersigned committee, and scholarships will be awarded in order of grade.

The scholarships are $50 each, and will be paid to the successful applicant as soon as work is begun at the College and a certification to that effect has been filed with the secretary of the State Grange; this certification must be countersigned by the Secretary of the College of Agriculture.

W. H. VARY,
W. N. GILES,
GEORGE WARREN,
Committee.

READING-COURSE LESSONS

HOUSEHOLD DECORATION

Every home-maker should plan her home to be not only convenient, but also attractive; for immediate surroundings have a bearing on the mental and physical welfare of the family.

Proper treatment of structural parts of a dwelling goes far toward making both an attractive and an easily worked home.

The lesson on Household Decoration reviews those principles that relate to the finish of the structural parts of a home interior—floors, woodwork, walls, ceilings. Harmony of color, selection of wall papers, paints, and other wood finishes, are discussed in a broad way, with the hope that the home-maker by this aid may be enabled to solve her own problems of a similar nature.

HOUSEHOLD FURNISHING

By means of the lesson on Household Decoration, we may provide an harmonious background or setting for the home picture. From this point the lesson on Household Furnishing takes up a discussion of the movable contents of the home. The bulletin shows how each room, as well as each object should serve the purpose for which it is intended; that any room is at its best when equipped with a few appropriate and carefully arranged furnishings. Thus a feeling of spaciousness is secured, not by building larger rooms, but by having fewer things in each room. This simplifies labor and also makes a more restful and effective interior.

For the lessons, address Reading-Course for the Farm Home.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

DEPARTMENT OF DAIRY INDUSTRY

(W. A. Stocking, Jr.)

The Department of Dairy Industry conducts each month a scoring contest for butter, cheese, and market milk. The purpose of this contest is to give an opportunity to New York State dairymen to send their product to the College and have it scored by expert judges. Investigation has shown that many dairy plants in the State are not receiving so high a price for their products as they might if the quality were better. A butter- or cheese-maker working in a single plant has little opportunity to compare the quality of his product with that of other factories and is compelled to take any price that a dealer may offer him. There are many plants in the State that are receiving a premium over New York quotations because their goods are of high quality and the makers are aware of the real value of their products.

If any dairyman in the State sends a sample of his product to the College of Agriculture once each month for scoring by experts who are familiar with market standards, and receives a report giving a detailed score of his product, he has a definite basis on which to work for its improvement. The men who have been taking part in the monthly scoring contests state that the suggestions they have received have been of much value to them; in fact, the man who received both the gold and the silver medal for butter at the State Fair last fall says his success was due directly to the suggestions he received from the scoring contest. We believe many butter and cheese factories could receive much better prices for their goods if they knew definitely the real quality of their product and could maintain it at a high standard. This would mean greater success for the factory and better pay for the patrons.

The scoring contests are conducted on the last Friday but one in each month. It is hoped that many butter- and cheese-makers and milk dealers will avail themselves of this opportunity to have their products scored by experts and receive suggestions for improvement that will lead to better prices and greater financial returns. Diplomas are given to those who maintain a certain average score throughout the year.

Detailed information regarding the scoring contests, amount of product to send, method of shipment, and other matter can be obtained by addressing The Department of Dairy Industry, New York State College of Agriculture, Ithaca, N. Y.

SOIL TECHNOLOGY

(E. O. Fippin)

Drainage.—The months of April, May, and June are perhaps the best in the year in which to study the need for drainage on the farm. At this season the so-called springy places are most in evidence and in observing these places, and the delays and interference with farm work that they create, it is worth while to consider whether there may not be profit in thoroughly underdraining them. Such spots are essentially waste land, yet as much labor and money in seeds, fertilizers, and other material are likely to be expended on them as on the most productive areas. The efficiency of tile drains in removing water from the soil and thus increasing crop yields, with profitable returns, has been so thoroughly demonstrated under all conditions that the result cannot be questioned. We suggest that every farmer in the State examine his farm at this season with reference to the need for underdrainage.

The College is now sending out men, on request of farmers in different parts of the State, who will examine the land of a farm as to need for drainage, and if necessary will take levels and prepare a map showing a complete system of draining wet areas, which may be constructed piece by piece to suit the convenience of the owner. The only requirement in connection with such assistance is that the traveling expenses of the drainage expert be paid.

All persons who have had experience with tile drainage should understand the conditions of the prize drainage contest, managed by the New York State Drainage Association. Two classes of prizes are offered: First, two silver loving cups, constituting a first and a second prize for the best reports on experience with tile drainage on a farm of more than 200 acres, of which at least 50 acres shall have been tile-drained. Second, three medals, constituting first, second, and third prizes for reports on experience with tile drainage on farms having an area of 10 to 200 acres, of which at least 15 acres shall have been tile-drained. For further information concerning these prizes, address the secretary of the Drainage Association, Professor E. O. Fippin, Ithaca.

Fertilizers.—At this season of the year, the purchase of fertilizers for spring crops is large. The cheapest fertilizer is usually not the one lowest in price, but one having the largest proportion of plant food constituents. In other words, a high-grade fertilizer is generally more economical than a low-grade fertilizer, when a complete fertilizer is used. On the average, perhaps the complete fertilizer is most effective, and the best standard composition for grain, fruit, and grass crops is one containing about 3 per cent of nitrogen, 10 per cent of phosphoric acid, and 7 to 10 per cent of potash. Those crops that are used for their leaves or for their vegetative parts will utilize larger quantities of potash in commercial fertilizers than will those that are used for their seed or their fruit. The latter should have a fertilizer relatively richer in phosphorus. A small quantity of nitrogen will give generally a profitable increase, and the greater the deficiency in organic matter the larger will be the benefit from nitrogen fertilizers.

Plowing.—Deeper plowing should be more generally practiced, and those who have land to plow this spring may do well to increase the depth 0.5 to 1.5 inch over previous depths.

Soil survey.—The soil survey will be conducted in Orange and Oneida counties during the season of 1912. The Orange county work will begin about May 1 and will be conducted by G. A. Crabb and T. M. Morrison. The survey of Oneida county will begin about June 1, with M. E. Carr and E. T. Maxon in charge.

SUMMER EMPLOYMENT

In the spring of each year the College of Agriculture is called upon to find summer employment on farms for a considerable number of its students. For the most part these students are strong, rugged fellows, ready to work. They are not working at agriculture because they cannot find something else to do, but because they intend to make farming their life work. Some of them are without farm experience, while others are fully qualified to assume the management of places. The former class are seeking experience, and desire pointers on well-managed farms run by fair-dealing men who will aid them in securing the training they need. They will expect to be paid just what they are actually worth. They will be getting their education and at the same time, in the majority of cases, will return good value to their employers. A considerable number of farmers in the State have taken students year after year and have found the experience on the whole to be valuable and helpful to themselves; and the students are fully appreciative of the help they have received. One farmer writes, "We have had student helpers for seven summers and they were a source of joy to us."

The State College of Agriculture must look to the farmers of the State to aid in the education of the young men who are to be our future farmers, and it desires to make known the demands that are now upon it. The young men who are available for employment this summer fall into four general classes:

1. Persons who expect to study at the College of Agriculture but who want to gain a practical knowledge of farming before they come. They are available at almost any time throughout the year. They are usually young men from cities who wish to become farmers. The College knows nothing about these persons except what is shown by correspondence with them. Many of them have been highly successful as farm help.

2. Students who want summer work chiefly for experience, but also to earn what they can. Usually they have had some farm experience, but not much; but owing to their eagerness to learn they will be different from the ordinary "inexperienced hand." These students can take work about June 10 and can continue until about September 15.

3. Students experienced in farm work who desire places for about the same period as above in order to earn money to enable them to continue their studies at college. They will possess technical knowledge of certain kinds of farming and should prove much more efficient than the ordinary "experienced hand."

4. At the close of the college year there are usually a number of students who have finished their studies and desire positions on farms as superintendents or managers.

Farmers who think they could use any of these four classes of help this summer are invited to write the Department of Farm Practice, College of Agriculture, Ithaca, N. Y., stating which class they can employ and the kind of farming they are engaged in. We have demands from students for a great variety of positions, so that we desire to hear from general and from poultry, fruit, dairy, nursery, and other farmers. *As the students will be leaving soon after the first of June, farmers should make their wishes known at once.*

EXPERIMENT STATION PUBLICATIONS

BULLETIN 310.—SOY BEANS AS A SUPPLEMENTARY SILAGE CROP

Soy bean culture has been tried by only a comparatively small number of farmers in New York State. Some of those who have attempted it have failed to produce profitable crops; others have been able to grow the beans successfully, but they did not know the best way of utilizing the crop. In Bulletin 310 the value of soy beans on the farm is discussed, together with meadows of growing and harvesting them for the enrichment of corn silage. Soy beans are good nitrogen-gatherers when inoculated with tubercle-forming bacteria; they are excellent food for poultry, swine, and sheep; but the most economical use for the crop in this State is to mix the beans with corn in the silo and thus avoid the necessity of using purchased concentrates. How this may be done is told in the bulletin. The results of some experiments with soy beans and corn grown together are summarized. The enthusiastic testimonies of a number of successful growers of soy beans are quoted and the need of more experiments with the crop is mentioned. The Department of Farm Practice and Farm Crops will be glad to assist farmers in obtaining seed of soy beans for planting, and to direct experiments with the crop where it is not established. A copy of the bulletin will be mailed on request.

BULLETIN 311.—THE FRUIT-TREE LEAF-ROLLER

Apple growers in Colorado, Missouri, and other Western States have contended with the fruit-tree leaf-roller for many years; eastern orchards, however, have been comparatively free from its ravages until very recently. The adult moths have been collected from Maine to California, but evidently they have never been abundant in the extreme East. In the spring of 1911, however, larvæ of this species appeared in great numbers in the orchards of W. O. Page at Bethany Center, N. Y., and to a considerable extent in neighboring orchards. In Mr. Page's orchards they proved a serious pest. Moreover, the leaf-roller was by no means confined to a small and limited area, but the larvæ were found in varying numbers in many orchards throughout New York State. Whether or not this thin but somewhat wide distribution among the apple orchards of the State means a general and rapid increase of the pest, remains to be seen. It is quite probable that the insect has become rather thoroughly established and will gradually develop into a troublesome pest.

A careful study of the life history of the leaf-roller during the past season shows that it produces only one brood a year. The eggs are laid in small patches on branches of trees in June. The masses are small and are varnished over for protection from the weather. They are dark green or grayish green in color and are exceedingly hard to find on the branches. The eggs lie unhatched until the following May. The larvæ appear as buds begin to swell, and they immediately attack buds and expanding leaves. Later they eat into the young setting fruit and begin to fold the leaves over and tie them together with silken threads. They attack apples, pears, cherries, and other fruits, producing serious injury. The larvæ complete their growth in May or early June and pupate in a rolled leaf. The moths appear and deposit their eggs as already explained.

On October 6, 1911, a representative of this College visited some infested orchards near Batavia and found egg masses in abundance. The indications are that this year will witness another infestation.

Attempts to control the leaf-roller by spraying twice with arsenate of lead—once before buds opened and again before blossoms opened—were not successful. The indications are that if the pest is to be controlled by spraying, a much stronger poison must be used. Spraying thoroughly with lime-sulfur at scale strengths just before buds open, in order to coat the eggs and prevent the larvæ from emerging, may prove to be the best means of control. This will be tried the coming season.

We should be glad to hear from growers whose trees may have suffered from attacks of the leaf-roller.

BULLETIN 312.—GERMINATION OF SEED AS AFFECTED BY SULFURIC ACID TREATMENT

Samples of red clover or other leguminous seed often contain many hard seeds that germinate slowly or not at all. These seeds have not lost their vitality, but the seed coats are so hard that water cannot penetrate and thus start germination. In experimental work, where it is desired to have every seed produce a plant, the presence of hard seeds is often very serious; sometimes as low as 4 to 10 per cent germination is found. Many different treatments for seed have been tried with more or less success. In this bulletin is described a method for treating such samples with sulfuric acid. In the experiments conducted by the writer, this treatment greatly increased germination in many samples of red clover and other leguminous seeds; in some cases the increase was 30 to 90 per cent. While germination of these seeds was increased, some of the weed seeds often found in clover were killed by the treatment. The acid treatment was also tried on cotton seed in order to test the effect on delinting and on subsequent germination. The seed was delinted so that it might be planted as corn is planted, thus rendering unnecessary a great amount of thinning.

Methods are described for treatment and handling of seed, on either a small or a large scale. The seed was tested under soil conditions and gave as good results as when germinated in the laboratory.

EXPERIMENT STATION BULLETINS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Address Mailing Room, College of Agriculture, Ithaca, N. Y.

Bulletins:

154. Tables for computing rations for farm animals
219. Diseases of ginseng
262. Apple orchard survey of Tompkins county
265. On certain seed-infesting chalcis-flies
266. The black rot of the grape and its control
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it
277 The principles of brooding—The improved New York State gasoline-heated colony-house brooding system
280. Pastures in New York
282. Seven methods of feeding young chickens
283. The control of insect pests and plant diseases
284. Labor-saving poultry appliances
285. The cause of "apoplexy" in winter-fed lambs.
286 The snow-white linden moth
288. Spray injury induced by lime-sulfur preparations
289. Lime-sulfur as a summer spray
291. The apple red bugs
292. Cauliflower and brussels sprouts on Long Island
293. The black rot disease of grapes
295. An agricultural survey of Tompkins county
297. Studies of variation in plants
298. The packing of apples in boxes
301. Sweet pea studies—I
302. Notes from the agricultural survey in Tompkins county
303. The cell content of milk
305. The cause of "apoplexy" in winter-fed lambs
307. An apple orchard survey of Ontario county
308. The plum leaf-miner
309. The production of "hothouse" lambs
310. Soy beans as a supplementary silage crop
311. The fruit-tree leaf-roller
312. Germination of seed as affected by sulfuric acid treatment

Circulars:

1. Testing the germination of seed corn
3. Some essentials in cheese-making
4. Soil drainage and fertility
6. Suggestions concerning treatment of seed corn with deterrents against crows
7. The relation of lime to soil improvement
8. The elm leaf-beetle
9. Orange hawkweed or paint brush
11. Helps for the dairy butter-maker
12. The chemical analysis of soil

(Department of Animal Husbandry) The formation of cow testing associations

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CLASSIFICATION OF MAILING LIST

Attention is called to the following new method of distributing the college publications to interested persons in the State. Bulletins of general interest will be sent to the entire mailing-list as heretofore, but those of special or local interest will be sent only to persons who have indicated an interest in given subjects. For example, a bulletin on grapes will be sent to the list of persons interested in grapes. The great diversification of agriculture in New York State and the increasing demand for the publications has compelled a classification that will place the publications where they will do the most good, eliminating thereby the waste that occurs through placing certain bulletins in the hands of persons who are not interested in the particular subject matter therein contained.

Classification cards similar to that given below have been sent to the mailing-list for experiment station bulletins. Persons on the mailing-list *who have not returned cards*, and any resident of New York State desiring to be placed on the list, should fill out the following classification card, cut on dotted line, and mail in envelope under two cent postage to the college.

Date..............................

Director, Experiment Station, Ithaca, N. Y.

Dear Sir:

Please place my name on your mailing list to receive the popular bulletins on subjects of general interest and others as checked below.

(In pencil indicate choice with an X)

........Apples.
........Commercial floriculture.
........General farming (general farm crops, live stock, milk production).
........Grapes.
........Small tree and bush fruits.
........Commercial vegetable culture.
........Poultry.
........Farm home.

I have not returned similar card.

Name ....

Post Office .... *R.F.D.*..............

County ....*State* ....

WRITE PLAINLY

READING-COURSES

THE IMPROVEMENT OF THE WOODLOT

The first of the series of reading-course lessons on farm forestry deals with the improvement of the woodlot. It is not generally realized that a crop of timber can be improved, in both quality and quantity, as much as any other farm crop. The lesson explains how this is so, and gives some reasons why, in spite of the long time required to raise timber, it is good business policy to give the farm woodlot some attention. The kinds of care to be given are described, including thinning and other means of increasing the rate of growth of the timber.

The last part of the bulletin tells how Nature can be made to start a new crop for us, after ripe timber is harvested, and also describes the starting of young forests by planting trees or by sowing seed. The care of tree seeds, the question as to when a tree is ripe, and the desirable timber trees to be favored in New York State are also discussed.

For this lesson address Cornell Reading-Course for the Farm, Ithaca, N. Y.

HORSE BREEDING TO INCREASE THE FARM INCOME

New York is a horse-consuming State, buying many horses each year from the West. Because we employ so many more horses than we produce and because of the heavy demand made by near-by cities, our market facilities are unexcelled. The advance sheet of the 13th United States Census shows that the number of horses has decreased during the last decade, but that the average price has increased over 76 per cent during the same period.

From data collected for the Reading-Course lesson, it would seem that a light-weight horse could be raised for $145, a medium-weight horse for $160, and a heavy-weight horse for $175. During the period when these data were collected, horses were quoted on the market at $135 to $150 for a light horse, $175 to $200 for a medium, and $275 to $300 for a heavy horse. Thus it would seem that there is much profit in producing a medium-weight or a heavy draft horse.

The Reading-Course lesson suggests a plan whereby our farmers may raise some of the horses used within the State, and thus retain money that is going to the western farmer in exchange for his horses.

For this lesson address Cornell Reading-Course for the Farm, Ithaca, N. Y.

THE LAUNDRY

This lesson includes a discussion of the following subjects: the nature of cleansing agents and their effects on various fabrics, such as cotton, silk, linen, and wool; characteristics and use of cleansing agents; the action of soap, kinds of soap, and use of soap substitutes; reasons for the use of bluing and precautions in its use; characteristics of various kinds of starch and methods of making starch for different purposes; methods of removing stains; easiest ways of washing and ironing clothing; labor-saving devices in the laundry, such as the washing machine, the ironing machine, gas, electric, and alcohol irons, stationary tubs.

For this lesson address Cornell Reading-Course for the Farm Home, Ithaca, N. Y.

CORNELL STUDY CLUBS

The April lesson in the Reading-Course for the Farm Home consists of 89 pages, being the largest bulletin thus far published in the course. It is for groups of women in rural districts who wish to unite in the study of problems relating to their home work and in the study of other cultural subjects. A series of programs are given on domestic science and literary subjects and on topics relating to the out-of-doors. The nature programs may be of interest to all members of the family, including the children. They relate to birds and trees common in the vicinity, to a study of soils and vegetation, and to domestic animals on the farm. There is also a report of a travel club that is made attractive as a study of foreign countries.

The lesson gives directions for the promotion and management of a study club. A constitution is provided, together with rules for organizing and conducting a meeting according to parliamentary usage.

By this lesson it is shown that the Reading-Course for the Farm Home is for individual or club study, and promotes the social and intellectual welfare of any community desiring its assistance.

For this lesson address Cornell Reading-Course for the Farm Home, Ithaca, N. Y.

THE CORNELL READING-COURSE FOR THE FARM

This course aims to place before its members consecutive lessons on important farm and general rural problems and has been provided to meet the needs of persons who desire a course of reading or study at home. Opportunity is given for the reader to choose one or more subjects for study by registering for definite series of lessons, as given below. Lessons at present available are added to by the publication of a new lesson each month. Suggestions for advanced study are made on request. Limited numbers of lessons will be supplied, for programs or reference purposes, to lecturers of granges or secretaries of study clubs and agricultural organizations.

The Cornell Reading-Course for the Farm is an enlargement and revision of the former Reading-Course for Farmers. Some of the bulletins of the Reading-Course for Farmers are still available. As these cannot be mailed at pound rates, postage should be included when they are called for, allowing one cent for each bulletin. Below is a list of available back numbers of the former course and lessons of the present course, arranged by series.

Back numbers of the former Reading-Course for Farmers

(One cent postage should be included for each lesson desired)

SERIES	
Stock-feeding	7. The computing of balanced rations
	8. Sample rations for milch cows
	9. Soiling crops, silage, and roots
	10. Pastures and meadows
	34. Seed corn for grain and silage
Dairying	22. The composition of milk and cream, and their by-products
	23. The construction of sanitary dairy stables
	24. Farm butter-making
Plant-breeding	41. Improving plants by selection or breeding
	42. Improving corn by seed selection
Farm crops	9. Soiling crops, silage, and roots
	10. Pastures and meadows
	34. Seed corn for grain and silage
	42. Improving corn by seed selection
The horse	44. Horse breeding in New York State
The soil	37. Drainage and larger crops

The Cornell Reading-Course for the Farm

(Mailed free)

The soil (continued)	2. The soil: Its use and abuse
Poultry	4. Incubation.—Part I
	6. Incubation.—Part II
	10. Feeding young chickens
Rural engineering	8. Knots, hitches, and splices
Farm forestry	12. The improvement of the woodlot
The horse (continued)	14. Horse breeding to increase the farm income

THE CORNELL READING-COURSE FOR THE FARM HOME

(Available lessons)

1. The care and feeding of children.—Part I
3. The care and feeding of children.—Part II
5. Household decoration
7. Household furnishing
9. Reading in the farm home
11. The laundry
13. Cornell study clubs

Note: Even numbers are used by the Reading-Course for the Farm.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office at Ithaca, N. Y.

L. H. BAILEY, Director

VOL. 1 ITHACA, N. Y., JUNE, 1912 NO. 9

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

TRAINING CONFERENCE FOR RURAL LEADERS

For a number of years the College of Agriculture was urged to establish a school for the training of social workers in rural communities. In response to this demand, there was held last July the first of a series of training conferences for rural leaders. The school lasted for eight days and consisted of three regular class periods in the morning, two in the afternoon, and one each evening. The subjects considered were the psychology of leadership, the rural mind, rural sociology, the country community, and community consciousness, health, education, industry, and socialization.

Plans have now been completed for the second training conference, to be held at the State College June 25-July 5, 1912, inclusive. This time has been chosen as the one best suited to the convenience of rural workers. The period of the conference has been lengthened to eleven days. The same general plan as last year, with lecture and discussion periods in the forenoons, demonstrations, round tables, field trips, recreational periods in the afternoons, and general lectures in the evenings, will be followed. The instruction will be given by a corps of carefully chosen specialists who are well known to rural educational, social, and religious workers in eastern United States.

The forenoon periods will be occupied by four series of ten lectures each on the following groups of topics:

Series 1. Leadership. The effect of physical and social inheritance and environment; health and leadership; the basis, formation, and content of the group; the types, functions, standards, and goals of the group; the development, types, and characteristics of the disciple; imitation, the heart of discipleship—its theory and practice; the leader, his equipment, characteristics, and functions; leadership, individual and social; suggestion, the heart of leadership—its theory and practice.

Series 2. The rural mind. A study of the various forces that have entered into the making of the rural mind, and their consequences. The following topics will be considered: the study of individuals; the contribution of heredity; the effect of selection; isolation and its consequences; the influence of nature; the vocation of the farmer; rural traits; re-formation and re-direction; community spirit; community ideals.

Series 3. Rural sociology. Among the topics to be considered are: recent developments in the rural problem; rural life optimism; factors that are making a new civilization in the country; the new cooperation in country communities; the community-serving country church and its allies; country life leadership; opportunity for community builders.

Series 4. Rural economics. This course will consider the general economic bases of agriculture, the problems of land holding and land tenure, the nature of agricultural production, and the population engaged in it. The relation of agriculture to other lines of effort, as manufacturing, commerce, and transportation, will be discussed as well as the problem of markets, price, and consumption of agricultural products. Special attention will be given to the conditions prevailing in the State of New York.

The afternoon periods will be occupied by round tables on health and recreation, with field illustrations of games and play adapted to rural communities; country life literature; visit to Cornell farms, review of the departments in the College of Agriculture, lake trip, field trips, and sports.

In the evening periods will be given lectures on the economic aspects of the country life movement; the community survey; federation of rural social agencies; enlistment, training, and objectives of leadership; the church in community life; the school in community life.

It is planned to spend the afternoon and evening of July fourth in a neighboring rural community in a demonstration of a sane Fourth.

Admission. The conference is open to all persons who are interested. Special invitation is given to rural ministers, secretaries of rural Young Men's and Young Women's Christian Associations, officers of men's brotherhoods, boy scout masters, school principals and teachers, editors, officers of granges, institute lecturers, and other active rural workers.

Because of the lines of work that will be represented by those present and the fact that those in attendance are all active rural workers, the opportunity for personal discussions will be one of the most attractive features of the conference. The round tables will take advantage of this opportunity.

Registration will be at the office of the Secretary, College of Agriculture, at 2 p. m., June 25. All persons are urged to register at or before the hour set for the first session of the conference in order that no part of the courses may be lost.

Expenses. Persons in attendance will pay their own traveling and entertainment expenses. The cost of board and furnished room in Ithaca runs from $5.50 a week upward. Lists of rooming and boarding places near the campus will be available at the registration office. Living at hotels costs from $10.50 up. It will not be necessary to engage rooms and boarding places in advance. Persons desiring to do so, however, should state the time of arrival and departure and whether single or double rooms are desired.

The place. Ithaca is situated in Tompkins county at the head of Cayuga Lake. It is in the midst of a farming region. The lakes, gorges, ravines, drives, woods, and other natural features, make it a delightful vacation spot. The sixty-acre playground of Cornell University is adjacent to the College of Agriculture.

Ithaca is reached by either the Lehigh Valley or the Lackawanna Railroad. By the latter a branch leaves the main line at Owego. Through trains run from New York and Buffalo on the Lehigh Valley and through sleeping cars run daily from New York on both roads.

The time. Registration for the conference will take place at 2 p. m., June 25. An informal reception will follow at 3:30. The definite program will begin at 8 p. m. on that day. The conference will close at 4:30 p. m., July 5. The regular Summer School in Agriculture (see below) follows the training conference immediately, beginning July 6.

Programs. For complete programs and detailed information concerning the conference and arrangements for living while at Ithaca, address Secretary, College of Agriculture, Ithaca, N. Y.

SUMMER SCHOOL IN AGRICULTURE

That agriculture can be made a fundamental educational subject in elementary and high schools is now an acknowledged fact. It will be many years before such agricultural instruction will be standardized as are other elementary school subjects; but good work is now being done and marked progress is being made.

Teachers must be trained for the work and it is for this purpose that a summer school is being conducted in the State College of Agriculture. The school is open to all persons who can derive benefit from the courses and who are prepared to pursue the work —rural school teachers, training class teachers, district superintendents and others who direct rural education, college students who wish to use part of the summer vacation for additional study, and practical men and women who desire special training for immediate use on the farm, in the garden, or in the home. Persons who direct rural education will have opportunity to obtain accurate knowledge on almost any country life interest they may wish to develop in their communities.

Full announcement of the summer courses has already been made in the April "Announcer," and attention is called here to only a few special features.

The courses. Forty-seven distinct courses are given in the Summer School in Agriculture, and all of the courses in the regular University Summer Session, now in its twenty-first year, are open to students in the Summer School in Agriculture. The courses in the Summer School include instruction in animal husbandry, principles of animal breeding, principles and practice of animal feeding, farm poultry, economic entomology, plant diseases, farm crops, farm management, farm mechanics, soils, agricultural chemistry, the weather, vegetable gardening, floriculture, fruit growing, dairying, plant physiology, nature-study, natural history methods, rural school education, elementary agriculture and school gardening, foods, human nutrition, home economics, household sanitation, extension work, general entomology, morphology and classification of insects, aquatic insects, insects and disease, systematic entomology. The work is scheduled in such a way that persons in attendance may take what they want and may specialize or generalize; and the courses in agriculture are so divided that persons may attend for the first three weeks or the second three weeks or for the entire six weeks.

A series of lectures by specialists on rural school education will be offered, to include discussion of the following among other topics: (1) teachers' associations; (2) farmers' institutes; (3) supervision of rural shcools; (4) extension work; (5) rural recreation; (6) the schoolhouse and grounds; (7) the rural library; (8) folk songs.

Practice work. All of the courses have laboratory or practice periods, and practical work is to be an important feature in the teaching. The students will handle farm animals and poultry, farm crops, and farm machinery; will test milk, propagate flowering plants, have work in school gardens, have laboratory work in home economics, and so on through the courses.

Field trips. In addition to the definite instruction in subject matter, effort will be made to demonstrate the spirit of the work. There will be special dawn, sunset, and night field trips that for many persons will lead to a new interpretation of the out-of-doors. Lectures in nature literature will be connected with the actual out-of-door life of wayside, forest, and farm. The possibilities of intellectual development in a farm day will be presented.

The subject matter for next year's work in nature-study and agriculture as outlined in the New York State Syllabus will be taught. The work of the summer school is approved by the State Education Department for temporary certificates, and as counting toward permanent certificates for persons who meet the other requirements set by the State Education Department.

The staff. All subject matter will be given under the direction of specialists. The resident instructing staff numbers forty-six persons, and their work will be supplemented by special lectures and demonstrations by well-known educators. A number of heads of departments in the College of Agriculture will give instruction in their special subjects. Some of the courses in rural school education will be under the direction of Professor MacCaughey, who has had a successful career in pedagogical work. He has broad nature sympathy and thorough training in scientific agriculture.

The well-equipped laboratories and all the facilities open to regular students throughout the college year will be available for the use of the summer students.

Personal consultation. Outside the formal courses students will have opportunity to consult more than one hundred specialists in the College of Agriculture, representing practically all the great lines of country life work. Special arrangements will be made whereby teachers and others may have private conferences with members of the staff for the purpose of receiving aid in their personal problems. To many persons this feature may be worth more than the regular class work.

Tuition. Tuition is free to residents of New York State. Nonresidents will be charged a fee of twenty-five dollars.

Credits and certificates. Students in the summer school may receive certificates of attendance and of work satisfactorily performed. University credit is given in certain of the courses.

Evening events. In addition to the regular classroom work there will be evening lectures on topics of general interest, and open air assemblies of summer students. There will be a general assembly of faculty and students on Wednesday evening of each week, in which brief addresses will be made, followed by informal programs. Musical recitals will be given every Tuesday and Thursday evening in Sage Chapel.

The time. The Summer School begins on Saturday, July 6, and closes on Friday, August 16. Special attention is called to the Training Conference for Rural Leaders (announced above), which convenes immediately before the opening of the Summer School. Full programs of the Summer School will be sent on application to the Secretary, College of Agriculture, Ithaca, N. Y.

GENERAL ANNOUNCEMENTS

FAIR EXHIBITS

During the coming season for holding fairs the State College of Agriculture will cooperate with as many town and county fairs as is practicable. Educational exhibits, with one or two specialists in charge, will be sent on request to societies desiring them. The instructors attending these exhibits will explain them and will discuss with visitors any questions that may arise. Each exhibit will require 10 to 14 feet frontage, with room for counters and wall space for charts and exhibit material.

Some of the available exhibits are: dairy, relating to the care and handling of milk, dairy utensils, butter and cheese making, and milk testing; animal husbandry, including feeds, feeding for milk production, importance of breeding, and related matters; poultry, treating of feeds, feeding for egg production, poultry-house appliances, and egg testing and grading; plant pathology, taking up diseases injurious to fruits and farm corps, with methods of control; entomology, dealing with the economic insect pests of fruit and farm crops, and methods of combating them; soils, including drainage, lime, conservation of manure, crop rotations, and soil management; forestry, comprised of photographs, wood specimens, samples of trees for planting, and methods of managing the farm woodlot; plant-breeding, showing charts, specimens of improved strains of seeds, and plans of improving farm crops; agricultural chemistry, dealing with commercial fertilizers and fertility questions; farm crops, showing specimens of types of cereals and other crops, and charts on questions of production.

In the plan of cooperation, the societies making requests for exhibits assume one half of the transportation cost on material and one half of the traveling expenses of the specialists in charge. Address all communications to The Extension Department, College of Agriculture, Ithaca, N. Y.

SOIL SURVEYS OF MONROE AND ONTARIO COUNTIES

The soil survey reports, with maps showing the distribution of the different soil types in Monroe and Ontario counties, have just been issued by the government printer. A limited number of these are available for distribution from the following sources: the Congressman from the district in which the surveys are located has two thousand copies at his disposal; the Senator from the district has five hundred copies; and the Department of Agriculture has one thousand. The report has not been printed by the State and therefore no copies are available from the College of Agriculture.

Both of the counties in question have a large diversity of soils, which belong in three general groups: (1) the alluvial soils along the streams, which are very small in extent; (2) the soils formed in the ancient glacial lakes, known as the Dunkirk series, which are of large extent, and (3) the soils deposited from glacial ice, known chiefly as the Ontario series. The Ontario stony loam and the Dunkirk loam and silt loam constitute the leading types of soil suitable for fruit production, and there is a larger acreage of fruits on these than on any other soil types in the State. The Dunkirk fine sandy loam and sandy loam, and also the Ontario sandy loam, are well adapted to certain varieties of fruit. The types that are suitable for fruit are of relatively large extent. The Volusia loam and silt loam, which are typical of the hill land conditions throughout southern New York, occur in the southern part of Ontario county.

A large proportion of the types in both counties are in need of underdrainage, either local or general, in order that their highest productive capacity may be realized. There are relatively large areas of the Dunkirk clay loam, which is a rather heavy and somewhat intractable soil. On the other hand, there are, particularly in the northwestern part of Ontario county and the eastern part of Monroe county, considerable areas of light gravel and sand which are inclined to be leachy and dry. In Monroe county, north of the Ridge Road, there are also rather large areas of soil known as the Lockport stony loam, a thin clayey loam underlain, at depths of 1 to 4 feet, by the red shale of the Medina formation. Owing to the near surface approach of this red shale, the soil is not easily brought into a good productive condition. The large variety of soil types in both counties and the wide range in their agricultural value illustrate the importance of taking the soil conditions into account in locating a farm for any particular purpose.

PEONY EXHIBIT.—DEPARTMENT OF HORTICULTURE

All peony lovers will be interested in the large collection of peonies growing on the grounds of the Department of Horticulture at Cornell University. Sixteen hundred varieties were planted and all are in good condition. The season has been very favorable, and the display during the second and third weeks of June is expected to surpass any exhibition of this flower ever held anywhere in the world. This great collection, embracing all the varieties of the leading growers in America and Europe, affords an unparalleled opportunity for growers to identify their varieties of peonies. All persons interested in this flower are invited to visit the trial grounds and inspect the collection, of which the leading varieties are described in bulletins 259, 278, and 305 of this station. Those who cannot visit the plantation may send flowers for identification. If the flowers are cut while in the bud stage, so that they will open in two or three days, and are shipped by express, charges prepaid, to the Department of Horticulture, Cornell University, Ithaca, New York, an attempt will be made to identify the varieties.

The annual meeting and exhibition of the American Peony Society will be held at Ithaca at the height of the peony season. The date has not yet been announced, but persons interested may obtain information about dates and exhibits by addressing the secretary, Professor A. P. Saunders, Clinton, New York.

VEGETABLE CROP ACCOUNTING

The Department of Horticulture still has on hand a few of the vegetable account books which were described in the March Announcer. The system is very simple, the outfit consisting of a cover and two pads of blanks, one for cost items and one for income items. The former is so arranged that it will provide for both labor and actual expenditure on the same sheet. The whole book is 6½x4x½ inches, with waterproof cover.

It is desired to place these remaining books in the hands of growers of late cabbage. The outfit is supplied without charge, on condition that the duplicate sheets that are provided shall be sent to this Department on the first of each month. All records are regarded as confidential. The Department agrees to make all totals, and to furnish the grower with a summary of results at the end of the season. Address Paul Work, College of Agriculture, Ithaca, New York.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 313.—THE PRODUCTION OF NEW AND IMPROVED VARIETIES OF TIMOTHY

The experiments in the breeding of new and improved varieties of timothy described in this bulletin were started by the Cornell University Agricultural Experiment Station in 1903 and have been conducted on a large scale ever since that time. They form one of the most comprehensive and conspicuous series among the Cornell experiments. Timothy is the most extensively grown crop in the State and any results in its improvement should be of great practical value.

In beginning the experiments, timothy seed was obtained from 163 different places in the United States and 60 places in foreign countries. Over 17,000 individual plants were grown from this seed and these have formed the basis for study of variations and selection of improved types.

The experimental trial of an individual selected as superior or as representing a promising type consisted, first, in growing trial rows of 16 to 24 plants from each individual, propagated as clonal varieties—that is, vegetatively, by the use of slips or suckers obtained by digging up a part of the plant. The average yields of such vegetatively propagated rows representing different selected individuals were followed for two or three years in each case, and the best sorts determined by comparing the different types tested. In the second step of the experiment, rows of about 24 plants each were grown from inbred or selfed seed of each type and the average yields of such rows tested during two or three years. In the third step, when plants appeared specially promising by the above tests, they were chosen for trial in broadcast plats, and the yields of such selected individuals in broadcast plats for two or more years formed the final basis of selection. The bulletin describes in detail the methods used in the experiments, as a guide to persons conducting work of this nature.

Aside from increasing the yield it has been found possible to secure other important improvements, such as resistance to rust. Rust is a disease of timothy that does much damage to the crop in New York State. The best of the new varieties are in large measure resistant to rust. It is also important in the timothy industry to have varieties ripening at different seasons, and early, medium, and late sorts have been produced. In ordinary timothy, when the proper stage for cutting is reached, many of the leaves are usually more or less dried out. Green-leaved types have been secured, on which the leaves remain green and fresh until the seeds have matured fully. Hay from such sorts is of superior quality.

In the course of the experiments a simple method of breeding has been devised for use in the improvement of timothy. This method is thought to be easy of application and to be adapted to the general use of farmers and especially of timothy-seed growers. It is described in detail in the bulletin.

The varieties of commercial value produced in the course of these experiments are being propagated as rapidly as possible in order to obtain seed for distribution to the farmers of the State. It is expected that a limited distribution of seed will be made this fall in time for planting in September. Applicants, in order of date of application, will be supplied with a small quantity of seed as far as the supply will go. A small charge will be made for such seed and, as a matter of good faith, those receiving it will probably be requested to agree to grow it in an isolated plat in order to obtain pure seed for their future use. The College desires merely to be sure that the grower will utilize the seed to the best advantage in extending the cultivation of the improved varieties. Applications for seed should be addressed to Professor H. J. Webber, Department of Plant-Breeding, College of Agriculture, Ithaca, New York.

BULLETIN 314.—COOPERATIVE TESTS OF CORN VARIETIES

The varieties of Indian corn grown locally in New York State are numerous. Some of these varieties have become well acclimated to certain localities after generations of cultivation. Some varieties grown for the silo are not acclimated and the seed is procured from a dealer each year by the grower.

Because of the climatic differences in various parts of the State, it is not possible to recommend varieties of corn for general use. Varieties need to be tested locally in a comparative way in order to determine which of the native or introduced varieties are best adapted to the purpose for which corn is grown in a locality. A series of cooperative variety tests of corn has been conducted by the College of Agriculture during the last three years. The most important results are published in Bulletin 314, which can now be obtained on request. The results show that there are a number of good varieties of corn, both of the flint and dent types, which have local adaptations. The best variety to plant must be determined by local experiments. More thorough and extended tests of varieties are needed for the corn-growing localities in order to show which varieties are the most profitable to grow.

READING-COURSE LESSONS

PRINCIPLES OF JELLY-MAKING

This lesson, which is a reprint of a bulletin sent out from the University of Illinois, is a valuable contribution to our knowledge of household preparation of food. Failures in jelly-making have been numerous in the average housekeeper's experience, and she will welcome an explanation of such difficulties. The lesson includes a discussion of the following points: essentials for jelly-making; reasons why some fruit juices do not make good jelly; the most economical methods of extracting the juice from juicy and from dry fruits; methods of determining the amount of concentration needed by over-dilute fruit juices; the proportion of sugar to use with various fruit juices; time necessary for cooking jelly and factors influencing the time required; the jelly test; sealing jellies; jelly failures, their cause and prevention.

PRESERVATION OF FOOD IN THE HOME

One of the problems of the housekeeper is to furnish a varied dietary at times when many foods are scarce and expensive. This problem has been largely solved by improved methods of food preservation. The June lesson of the Farm Home Reading-Course considers reasons for the spoiling of foods, together with scientific principles underlying the different methods of food preservation. It includes discussions of household ways of preserving foods by the action of low temperature, with directions for making small ice boxes or refrigerators for the farm home; of methods of canning fruits and vegetables and preserving foods by the use of sugar; of abuse in the use of preservatives; of the effect of removal of moisture on the keeping quality of foods. A few recipes are included, in order to illustrate the principles of food preservation.

For this lesson and the one preceding, address The Cornell Reading-Course for the Farm Home, Ithaca, N. Y.

PRACTICAL DAIRY PROBLEMS

This reading-course lesson is ready for distribution. It contains practical examples illustrating methods of working out problems that are constantly coming to men handling dairy products. The following is a partial list of the problems treated: computation of pounds of fat in milk and cream for various tests; finding the average fat test; determining the most profitable method of disposing of dairy products; determining the extent of loss in operating cream separators; problems of overrun in butter and in yield of cheese; value of salted versus unsalted butter; computation of cheese factory dividends; standardization of milk and cream.

The Department of Dairy Industry is constantly in receipt of requests for assistance in solving the various problems covered by this reading-course lesson. Such questions as the best method of disposing of milk at stated prices, the calculation of overrun, the yield of cheese, and similar problems are constantly coming both to producers and to manufacturers of milk and dairy products. It is the purpose of this lesson not only to illustrate the methods of solving these problems, but so to explain the principles on which they are based that the dairyman will be able to deal with any special question which may arise. For this lesson, address The Cornell Reading-Course for the Farm, Ithaca, N. Y.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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VOL. 1 ITHACA, N. Y., JULY, 1912 NO. 10

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Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

DEPARTMENT OF HOME ECONOMICS

Agriculture is the science, or the meeting point of many sciences, treating of animal welfare. Home economics is the science that treats of some of the more important phases of human welfare. It includes a study of foods, their selection and preparation; it considers the relation that right diet bears to the health of the body and to the development and efficiency of the individual; the conditions necessary to insure health and efficiency; the use of the income in purchase of food, shelter, and clothing; principles of art as applied to decoration of house and person; social and industrial forces that govern the home and its activities; the child and the conditions that control its inheritance and environment.

The new Home Economics Building

The Department of Home Economics at Cornell University.—The State has provided for the maintenance of a Department of Home Economics at the New York State College of Agriculture. From 1900 to 1905 the work was confined to farm home extension. In 1907 home economics was established as a regular department of instruction in the College of Agriculture at Cornell University.

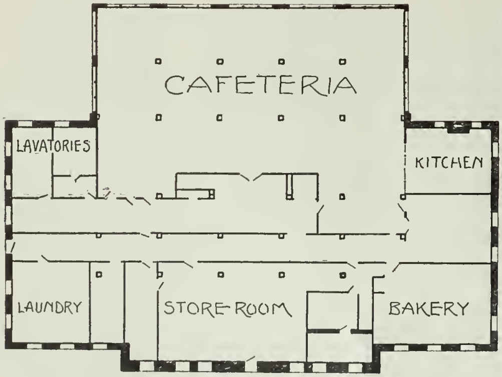
The Home Economics building.—The growth of the department soon necessitated larger quarters. Accordingly, a bill was introduced into the Legislature in 1910 to provide an appropriation of $154,000 for a Home Economics building at the State College of Agriculture. The bill was passed by the Legislature, and the Department will occupy its new building next October.

In the basement of the building is a cafeteria that will seat four to five hundred persons. Here students who wish to specialize in problems of caring for large numbers will have practice in providing food in quantity. While the cafeteria will provide a wholesome noonday lunch, it is intended to furnish a practical laboratory in institutional management. On the first floor are offices, classrooms, and a small living apartment. Each year senior students will have opportunity in turn to live in the apartment under the guidance of an instructor. The problem of the small household may thus be worked out in a practical way. On the second floor is a small audience room to be used for class work and for meetings relating to the work of women, particularly to that branch of the latter having to do with household economics. Food laboratories, offices, and a practice dining-room and kitchen are on this floor. On the third floor are laboratories for a study of clothing, sewing, and millinery. On the fourth floor is a large drafting room for work in house planning, furnishing, and decorating, and in designing connected with sewing and millinery.

The course of study.—Instruction in home economics in the College of Agriculture is given both through extension work and through the four-years course that leads to the degree of Bachelor of Science. The regular course has practically the same requirements for entrance as those of other full college courses given in Cornell University. Instruction for the first two years of the four-years course includes the same underlying sciences as are given in the course in agriculture—chemistry, physics, biology, botany, physiology, and bacteriology. The course includes also drawing, English, political science, and electives from the College of Agriculture and from other colleges according to the interest of the student. Attention is given in the last two years to the application of the subjects to a study of foods and nutrition, sanitation, household management, house furnishing and decorating, sewing, and millinery. Both the theoretical and the practical are introduced to sustain the course.

The outline here given shows the approximate schedule followed by students pursuing the four-years course in home economics:

Freshman year	Number of course	First semester	Second semester
English	1	4	4
Chemistry	1	6	—
Chemistry	6	—	5
Biology	1	3	3
Home Economics (The Home)	2	—	2
The Farm		2	—
		15	14
Sophomore year			
Physics	1	4	—
Physiology	3	—	3
Home Economics (Foods)	3	—	6
Chemistry	92, 93	5	—
Bacteriology	15	—	4
Home Economics (Sanitation)	4	—	3
Botany		5	—
		14	16
Junior year			
Chemistry	32	4	—
Home Economics (House Planning)	9	3	—
Home Economics (House Decoration)	10	—	3
Home Economics (Human Nutrition)	6	2	6
Drawing	2	2	—
Political Science	51	3	3
Chemistry		—	2
		14	14
Senior year			
Home Economics (Household Management)	14	3	—
Home Economics (Woman and the Family)	12	—	3
Home Economics (Seminar)	22	1	1
		4	4



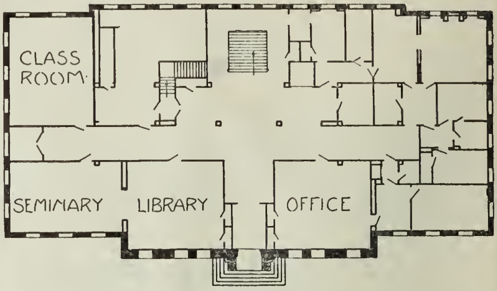
Basement plan of Home Economics Building

Sewing courses will be given, but are not included in the outline as the hours for that work have not been determined definitely.

The number of the course refers to the number given in the catalog. Courses such as English, botany, physiology, and others. which are not found in the catalog for the Agricultural College, are given in the Arts College and will be found in its announcement.

In the junior and senior years opportunity is offered for electing such subjects as are especially desired or needed by the student, such electives to be subject to the approval of the Home Economics staff. A proper choice of electives makes the course technical and cultural.

Home economics as a vocation.—There is a growing number of women in the College of Agriculture who are taking a four-years course with the purpose of making home economics a profession after obtaining a degree. The following vocations should be open to women taking a course in home economics and afterwards specializing in some phase of it: homemaking, teaching, dietary work, institutional management, sanitary inspection, bakery or laundry management, fruit-canning industries, lunch rooms, millinery, dressmaking, expert buyers of clothing, food, and home furnishings, expert care of children.



First floor plan

EXTENSION TEACHING IN HOME ECONOMICS

The first state appropriation for farm home extension by means of reading-courses and correspondence was made by the State of New York to the State College of Agriculture at Cornell University. A reading-course for farmers' wives was instituted in 1900. The manner of getting acquainted at that time was through a letter sent to 6,000 farm women of the State, and from this resulted an immediate mailing-list of 2,000 members.

The Reading-Course.—The Farmers' Wives' Reading-Course was instituted for the purpose of conducting a course of home study whereby the problems of the farm home could be met in the same scientific way as are those of the farm. The bulletins have treated such household subjects as relate to food, shelter, and clothing. They are accompanied by discussion papers intended to stimulate thought on the subject matter of the bulletins. The discussion papers contain questions that bring out the point of view of the practical housekeeper, and through the answers to these questions valuable suggestions have been received for the management of the reading-course. As a result there has been a large personal correspondence with the women of the State, who are at liberty to ask questions at any time relating to their home problems. The bulletins are intended to stimulate further study. Readers are urged to pursue a further knowledge of subjects by means of traveling libraries or through use of a public or private library.

The lessons are free to persons living in New York State. There has been a large call for them outside of the State, but as the work is under state appropriation it has been necessary to limit the out-of-state distribution to libraries, teachers, and lecturers who are giving work in domestic science. The bulletins now available in the reading-course are as follows:

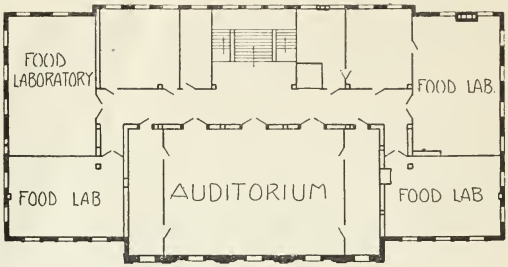
1. The care and feeding of children.—Part I.
3. The care and feeding of children.—Part II.
5. Household decoration.
7. Household furnishing.
9. Reading in the farm home.
11. The laundry.
13. Cornell study clubs.
15. Principles of jelly-making.
17. The preservation of food in the home.—Part I.
19. The preservation of food in the home.—Part II.

Note.—Even numbers are used by the Cornell Reading-Course for the Farm.

Cornell study clubs.—Out of individual study has come the organization of study clubs in which groups of women living within a reasonable distance of one another meet to discuss the lessons. A definite program is arranged on domestic and literary topics. In most places these gatherings are held twice monthly; officers are elected at the first meeting, a constitution adopted, and a program prepared for the season. After each meeting a report is made to the Department of Home Economics of the College by the secretary of the club. The Department helps in the preparation of programs, and members of the teaching staff visit the clubs for addresses and assistance.

Homemakers' Conference.—The Homemakers' Conference is held at the New York State College of Agriculture in connection with the program for Farmers' Week. Officers are elected from the winter-course students, who help in the management of the Conference. The program is prepared by the Department of Home Economics, and the teaching staff, with some outside assistance, gives lectures and demonstrations throughout the week on subjects relating to the home.

Winter-Course in Home Economics.—The object of the winter-course is the teaching of housekeepers and of those who contemplate housekeeping. The course is not intended to prepare students to teach or to follow other professional work. There is no university entrance requirement and no university credit is granted for the work. It is conducted at the same time as the other winter-courses of the college. Two or three lectures are held daily throughout the three months of the winter-courses, and laboratory work is provided in cooking and sewing. Tuition is free to residents of New York State; those living outside the State are charged a tuition fee of $25. Each student is charged a laboratory fee of $7.50 to cover the cost of materials used in cooking, and a fee of $1 for materials used in sewing.



Second floor plan

GENERAL ANNOUNCEMENTS

PLANT LICE ON APPLES, CHERRIES, PLUMS, ETC.

(Glenn W. Herrick)

The year 1909 was an aphid year. Aphids were abundant on many kinds of plants, especially on apple trees, and did an immense amount of damage. Aphids are again abundant this year and are producing considerable injury. We have seen them exceedingly numerous on cherries, plums, currants, various ornamental plants, and to a considerable extent on apples. The buds of apples were thickly covered early in the spring with the green grain aphis, which, fortunately, has almost disappeared at this time. The rosy aphis, however, still continues on the apple in considerable numbers and is rolling a good many leaves, especially on the more shaded parts of the trees.

In order to destroy the aphids on a plant one has actually to hit them with a contact insecticide, such as whale-oil soap, kerosene emulsion, or tobacco extract. This it is practically impossible to do if the lice have rolled the leaves and are working inside the rolls. One has to spray either early, while the lice are on the buds, or when they are on the young leaves and before the latter are curled and rolled.

Whale-oil soap is usually used at the rate of 1 pound to 5 or 6 gallons of water. The soap may be cut up fine and the water heated until the soap is all dissolved.

To make kerosene emulsion, dissolve ½ pound of soap in a gallon of water over the fire. Add 2 gallons of kerosene oil while the water is hot and agitate violently until a white, creamy emulsion is obtained. For killing the lice add 17 gallons of water.

The tobacco extract, Black-leaf-40, is perhaps one of the most satisfactory contact sprays for plant lice. It mixes readily with water, and all that is necessary to do is to dilute it with the required amount of water and add a little soap to make the mixture stick and spread. The extract is used at the rate of ¾ to 1 pint to 100 gallons of water, with 4 or 5 pounds of whale-oil soap or ordinary laundry soap added to the solution. Black-leaf-40 is manufactured by the Kentucky Tobacco Product Company, Louisville, Ky., and may be ordered from them by any local druggist.

The rosy apple aphis, which caused so much injury in 1909 by curling the leaves of the trees, stunting the new growth, and causing the apples to remain small and knotty, is again in evidence in parts of the State and may do considerable damage. Fortunately, it is appearing rather late in the season and may disappear without producing so much injury as it did in 1909. It is said that only three generations are produced on the apple tree, the last generation leaving for other food-plants. If this is true the last generation should be leaving the trees before very long.

At the present time the aphids are found in curled-up leaves, and later, if they become more abundant, they will spread to the stems of the apples. If they become abundant enough for this, the grower should spray at once with Black-leaf-40 at the rate of ¾ to 1 pint to 100 gallons of water, with 5 pounds of whale-oil soap added to make the material stick and spread. The trees should be very thoroughly drenched with this material, at high pressure, taking pains to hit the young apples. The object is to prevent the aphids from clustering on the stems of the young apples, thereby preventing the apples from growing and causing them to become knotty and gnarly.

The larvæ of the syrphus flies and ladybird beetles are quite abundant everywhere in orchards now and are devouring hundreds of the aphids. In an investigation of several orchards in Wayne county we found these enemies of the aphids abundant and doing heroic work. Many of the rolled leaves, formerly infested with the aphis, were entirely free from the lice, having been cleaned up by the larvæ of the syrphus flies and ladybirds. If these enemies of the aphids continue to increase they will control the lice.

DEPARTMENT OF FORESTRY

(Walter Mulford)

Advice in woodland improvement and in forest planting.—Woodland owners who are awaiting advice of a definite character before adopting a systematic plan of management for their woodlands will be interested in the announcement that the Department of Forestry is prepared to send a member of its staff for a personal inspection of woodlands in New York State. Such a visit will enable the giving of personal advice on the ground, which will be followed by a written statement of the work to be done to put the woodland in better growing condition; or, in the case of open lands that are to be planted, a statement as to the kinds of trees to be used and how they should be set. The only charge to the owner for the personal inspection and the report is for the traveling expenses of the representative of the College. It is expected that it will be possible so to organize the work that the traveling expenses will amount to very little, because a large number of places can be visited on one general trip. Only in rare cases will the total expense amount to more than $8. The Department is glad to provide, free of charge, such help as can be given by correspondence.

Any one living in New York State who wishes to make application for such an examination of his lands should send the following information to the Department of Forestry, New York State College of Agriculture, Ithaca:

1. How many acres of woods are there to be examined? How many acres of open land to be planted?

2. Are you willing to pay the necessary traveling expenses, provided such expenses do not exceed $10?

3. To what railroad station shall the Department's representative come in order to reach your place?

If it is found, after planning the inspection trips, that you are so far from other applicants that the expense will exceed $10, the Department will write you, asking whether you wish the work done. All of the examinations will be made this summer if possible, but there may be so many applications as to make it necessary to postpone a part of the work until next year.

Appointment to Forestry Staff.—Mr. Samuel N. Spring of New Haven, Conn., State Forester of Connecticut, has just been appointed professor of forestry in the New York State College of Agriculture, and will begin work at the University in September. Mr. Spring graduated from Yale University in 1898 and has had wide experience in forestry in nearly all parts of the country. For the last three years he has been State Forester of Connecticut and Forester to the Connecticut Agricultural Experiment Station, and in these capacities he has had much to do with farm woodlot problems. With Mr. Spring there are now three professors of forestry in the Department of Forestry at Cornell University.

PLANT PHYSIOLOGY

(B. M. Duggar)

During the past spring the Department of Plant Physiology has distributed free, for experimental purposes, a large number of soil cultures of the nodule bacteria for alfalfa and soy beans. Since in this State alfalfa is extensively sown late in the summer or early in the fall, a special provision has been made to have a limited number of the soil cultures for this plant ready for distribution late in the season. Those who intend to sow alfalfa this season and wish to inoculate for it, may obtain the inoculating material from this Department. In writing for it, indicate the area to be planted and the approximate time when the planting will be made. Address The Department of Plant Physiology, New York State College of Agriculture, Ithaca, N. Y.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 316.—FROSTS IN NEW YORK

Climate, which includes both the averages and the extremes of weather, determines largely the kind of agriculture that may be undertaken profitably in any locality. The agriculture of New York is diversified to a high degree because of the unusually wide range of climatic conditions throughout the State, resulting mainly from its highly varied topography—its mountains, valleys, lakes, and plateaus. There are no less than ten different types of climate found within the limits of the State, and each type is more or less distinct from all the others because of the predominating influence of some one climatic factor.

In some respect at least, nearly every locality and almost every farm in New York State enjoys a climate of its own. This is particularly true with regard to frosts, for local topography undoubtedly influences the occurrence of frost to a greater degree than it does any other climatic element. Thus, the liability to frost on the individual farm may be greater or less than that of the region in which the farm is located, the departure depending on the modifying influence of the topography of the farm. Therefore, in order to determine the frost liability of the individual farm it is necessary to understand the principles involved and the application of those principles to local topographic conditions, to the end that the individual farmer may adopt a crop scheme that will reduce the injury from frost to a minimum.

A part of Bulletin 316 is devoted to a discussion of such principles, and suggestions are offered as to their application. The following are among the topics discussed: how plants are injured by frost, including the effect of rapid and slow thawing; what is meant by killing, heavy, and light frosts; frost frequency in city and country; the effect of large bodies of water on spring and fall frosts; the effect of elevation, including the principles of air drainage; frost liability with different exposures; soil and soil coverings in relation to frost; frost warnings issued by the United States Weather Bureau, how to use them, and how they may be obtained; forecasting frost from local observations; methods of frost protection, including smudging, orchard heating, and the like.

At the end of the bulletin the records of frosts made at one hundred and fifteen places in the State are given in tabular form. The dates are arranged in five-day periods showing just how many times, in the number of years the record has been kept, killing frosts occurred before or after certain dates. From this table it is possible to determine the schedule for any crop, subject to injury by frost either in spring or fall, that would have produced the best results in past years; and it is reasonable to assume that the crop scheme that was best in the past will prove best for the future also.

READING-COURSE CLUBS

The study of the reading-course lessons may be pursued to advantage by groups of farmers and their families by means of simple informal organizations known as reading-course clubs. Where these clubs have been tried an interest in improved agriculture has been aroused and social intercourse increased. These organizations have also brought to light valuable local experience and have stimulated individual thought and the expression of one's ideas to others. The Cornell Reading-Course Lessons are used in these clubs for the preparation of programs that are participated in by all the members. One person is generally asked to be responsible for the success of each meeting, which is made possible by a careful study of the lesson to be taken up. Lessons are distributed to the various members of the club so that they may be prepared to take part in the general discussion, which occupies a part of each program. Music and other social features are recommended, to add to the enjoyment of the meetings.

The formation of reading-course clubs has usually been most successful during the fall and winter, but the interest manifested in reading-course lessons this year suggests that the development of such clubs may well be continued through the summer. Meetings generally take place every two weeks during the fall and winter; if it is not advisable to meet so often in the spring and summer, monthly meetings are suggested. These will keep the organization in good condition to hold the meetings every two weeks later in the year. The College is glad to cooperate with interested persons, in any locality, in the formation of a reading-course club.

In some communities organizations exist with which the College of Agriculture is glad to cooperate in conducting educational work by means of the reading-courses. Granges, churches, schools, and agricultural organizations are invited to make use of reading-course lessons and experiment station bulletins. The following three ways are suggested in which these may prove valuable to a study club:

1. For study by the entire membership previous to a general discussion at a regular meeting.

2. By speakers in preparing for a program at a regular meeting.

3. For reference. A set of available lessons may be obtained for the library of any grange or recognized agricultural organization.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office at Ithaca, N. Y.

L. H. BAILEY, Director

VOL. 1 **ITHACA, N. Y., AUGUST, 1912** **NO. 11**

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DEPARTMENT OF FORESTRY

The teaching of forestry in American universities had its beginnings at Cornell, where the first College of Forestry in this country was established by the Legislature of the State of New York in 1898. After a period of efficient service, instruction was suspended in the College on June 17, 1903, and from then until the fall of 1911 no courses were offered. During the year 1910-11 a Department of Forestry was established in the New York State College of Agriculture at Cornell University, and in December, 1910, a professor of forestry was appointed. He took up his duties at the College in June, 1911, and gave instruction to students during the college year just closed. During the past year the Department of Forestry has been much developed, and at the present time there are two professors and an assistant professor in the department, and it is expected that before the opening of College this fall a third professor will be appointed.

THE FORESTRY BUILDING

The New York State Legislature at its last session appropriated $100,000 for the erection of a building for forestry at Cornell University. Plans for the building are now nearing completion, and it is expected that it will be ready for occupancy by the fall of 1913. It is to be located just east of the university filtration plant, on the high ground overlooking the valley of Forest Home and close to the beautiful woodland along Fall Creek ravine.

While the plans have not yet been finally approved, the general features of the proposed building can be outlined. Subject to approval by the State Architect, the building will be 142 feet long and 54 feet wide, and will be constructed of brick. The plans call for three floors and an attic. On the ground floor will be a large laboratory for study in wood technology, a smaller laboratory for advanced work in wood technology, and a timber testing room. On this floor will also be provided a locker room, a freight room, a tool room, and a room for the storage of laboratory materials. The first floor will contain a group of offices consisting of a general office and six private offices connecting with it; a laboratory for mensuration and utilization; a lecture room fitted with an automatic window-darkening apparatus so that lantern slides can easily be used in lectures; an instrument room, a lecture material room, a class room, and a reading room. On the second floor will be a laboratory for silviculture and dendrology, a museum, a drafting room, a classroom, a seminar room, and an herbarium room. There is considerable space in the attic, where there will be camera and dark rooms, and laboratory space for advanced students. A room will also be fitted up for the forestry club.

WOODLOTS AND FORESTRY EXPERIMENT LAND

The various woodlands on the university farms, and a tract of 38 acres, much of which is open land ("forestry experiment land"), have been assigned to the Department of Forestry. They are to be used to show methods of caring for woodlots and methods of forest planting. They will be used also for experiments in the treatment of woodlands. Extensive plantings, aggregating 35,000 trees, have been made during the past year, mostly by the one hundred and thirty-five students then registered in courses in forestry.

AIMS OF THE DEPARTMENT

The Department of Forestry has three principal aims: to give instruction at the College; to conduct investigations and field studies designed to help solve the woodlot and forest problems of New York State; and to give direct help to owners of forest lands in the State.

The instruction at the College is intended to meet the needs of several classes of students: (1) Students of general agriculture who wish elementary instruction in the care of woodlands and in forest planting and forest nursery work. (2) Prospective teachers, business men, lawyers, and others who desire an understanding of the place of forestry in the life of a nation. (3) Technical students in other lines who wish one or more technical forestry courses, as, for example, wood technology. (4) Professional forestry students.

INSTRUCTION IN GENERAL FORESTRY

The following courses are intended for students in general agriculture and for others who desire an elementary knowledge of forestry but do not expect to make forestry their principal work. First comes the course in Farm Forestry, which treats of the management of the farm woodlot and the starting of new woodlots by planting or sowing. The course deals with the woodlot as deserving and repaying proper care, such as is given other crops on the farm.

For students who wish a more detailed knowledge of timberland management than is given in Farm Forestry, but who do not wish the professional courses, a one-year course in The Elements of Forestry is offered. The first term is devoted to estimation and measurement of the amount of standing timber and its value; measurement of logs and of other forest products; rate of growth of timber in diameter, height, volume, and value; the best uses to which various forest products can be put; methods of logging, milling, and sale of timber; identification of common woods; age at which timber should be harvested; methods of regulating the amount of timber cut so as to insure a permanent income. The second term's work includes the life history of the forest; the influence of soil and climate on forests; the influence of forests on stream flow, climate, and soil; forest planting, sowing, and nursery work; reproducing the forest without planting or sowing; care of the crop during its growth, including thinning; protection from fire and other enemies; identification of a few of the principal timber trees of this region.

There is also a course called The Field of Forestry, designed for students wishing a general lecture course without laboratory and field work. This course discusses the place of forestry in the life of a nation; its aims and importance; national, state, communal, and private forestry enterprises; the day's work of a forester.

THE PROFESSIONAL COURSE IN FORESTRY

Aims.—The professional forestry course is designed to prepare students for a professional career in general forestry, and also to provide opportunity for advanced study and research in silviculture, forest management, forest mensuration, wood technology, forest entomology, forest pathology, and other lines in which specialists will be useful. The professional forestry course is also suitable as a means of general education, useful in business life or otherwise.

Length of course and degrees conferred.—The full course requires five years, leading to the degree of Bachelor of Science at the end of the fourth year and that of Master in Forestry at the end of the fifth year. Students who enter as graduates without having had the undergraduate instruction in forestry, but who have had substantially the equivalent of most of the courses other than forestry which are listed in the recommended sequence of studies (see below), should be able to complete the work for the master's degree in two years. If they are lacking in much of the fundamental science work there listed, it will require a correspondingly longer time to get the master's degree. Work for the degree of Doctor of Philosophy may also be done in the Department of Forestry.

Undergraduate work leading to the degree of Bachelor of Science.—The undergraduate work, extending over four years, must include all the courses required of general agricultural students, and such other courses as the Department of Forestry believes to be best adapted to meet the needs of the individual student. The outline of studies given below shows the approximate schedule that such students will follow. Deviations from it will be made to meet the needs of the individual student.

Graduate work leading to the degree of Master in Forestry.—In the fifth year the student chooses one major and one minor subject and pursues either advanced study or research along those lines. This year is not devoted to undergraduate class work taken by graduate students, although in special cases a part of the student's time may be spent in such classes. The work of each candidate for an advanced degree is in charge of a committee consisting of two or more professors under whom his major and minor subjects are pursued, the professor of his major subject being chairman. A candidate for the master's degree must spend at least one year in residence at this University. He must present a satisfactory thesis or essay and must pass an examination. The course of study for students who enter as graduates but are not yet candidates for the master's degree will be arranged to suit the needs of each student.

In addition to the opportunities for graduate work in the Department of Forestry, the departments of Entomology and Plant Pathology offer facilities for advanced study of forest insects and tree diseases.

Graduate work leading to the degree of Doctor of Philosophy.—Candidates for the degree of Doctor of Philosophy may elect either major or minor subjects in the Department of Forestry.

Description of the courses of instruction in technical forestry

The following is a brief description of the courses of instruction in technical forestry:

Wood Technology.—The structure, identification, and technical qualities of the leading kinds of timber; seasoning, preservation, and distillation of wood; paper pulp.

Forest Utilization.—The principal uses of leading timbers; production and consumption of lumber; markets; methods of lumbering and milling; utilization of other forest products, such as naval stores, maple sugar, nuts, game, and the like.

Forest Engineering.—The construction of trails, roads, telephone lines, and so forth.

Forest Mensuration.—Measurement of logs and of standing timber; timber cruising; study of the rate of growth of timber; volume and yield tables.

Timber Trees and Forest Regions.—Brief account of the forest regions of the world; detailed description of the forest regions of the United States and Canada; the distribution, importance, and silvical characteristics of a large number of the leading timber trees of the United States and Canada, and the identification of such of these as do not grow near Ithaca. (The identification of trees growing near Ithaca is included in one of the courses in botany.)

Silviculture: Forest Ecology.—The influence of site on the forest, and of the forest on site; the behavior of trees as members of a forest community.

Silviculture: Natural Reproduction and the Care of the Forest.—A technical discussion of the silvicultural systems as practiced in Europe, and the possibility of using them in each of the forest regions of the United States and Canada; improvement cuttings, thinning, and underplanting; marking timber for cutting on the National Forests and elsewhere.

Silviculture: Forest Planting and the Forest Nursery.—Collection, care, and testing of tree seeds; identification of tree seeds and seedlings; raising trees in a forest nursery; starting forests by planting trees and by direct seeding; fixation of sand dunes; forestation on the prairies and under the semiarid conditions of the Far West; great forestation enterprises of the world.

Forest Protection.—Protection of forests from fire, wind, and other enemies.

Forest Policy, Forest Law, and History of Forestry.—The historical development and present status of the relations of state and individual to forestry; the elements of forest law.

Forest Management.—The regulation, valuation, and administration of forest properties; forest working plans.

Advanced Work.—Individual advanced study of designated topics.

Seminar and research work is provided for advanced students.

Outline of studies for professional forestry students

The subjects in black-faced type are required of all students in the College of Agriculture. The numbers refer to the numbers of the courses in the announcement of the College, copies of which may be had on application to the Secretary, College of Agriculture, Ithaca, N. Y.

Freshman year

	Hours 1st term		Hours 2d term
English 1	4	**English 1**	4
Chemistry 1	6	**Chemistry 85**	4
Biology 1	3	**Biology 1**	3
The Farm 1	2	Drawing 1	2
		Meteorology 1	3

Sophomore year

	Hours 1st term		Hours 2d term
Botany	5	**Plant Physiology 7**	4
Geology 1	3	Geology 11	3
Physics 1	4	Advanced Surveying	4
Elementary Surveying	3	Entomology 31	1
Entomology 3	3	Soil Technology 1	3
		Farm Mechanics 3	3

Summer following sophomore year

Summer camp for six weeks, beginning in June. Topographic surveying, six hours credit.

Junior year

	Hours 1st term		Hours 2d term
Political Science 51	3	**Political Science 51**	3
Forestry 6	2	Forestry 8	2
Plant Pathology 1	3	Plant Pathology 8	2
Zoology 5	3	Zoology 5	3
Botany 10	3	Rural Economy 7	3
Forge Work S4	1	Entomology 30	2
Geology 15	1	Landscape Art 2	1

Senior year

	Hours 1st term		Hours 2d term
Forestry 9	4	Forestry 10	2
Forestry 13	3	Forestry 11	5
Forestry 14	3	Forestry 15	3
Forestry 18	2	Forestry 16	3
Forestry 19	2		

The remaining work of the undergraduate years should be chosen with reference to the tastes and needs of the individual student.

Fifth year

Forest management (Forestry 20); seminary (Forestry 22); and either advanced work (Forestry 23) or research (Forestry 24). During the six or eight weeks preceding Commencement, students taking course 23, except those who are specializing in lines not requiring the work, will be engaged in the preparation of a forest working-plan of a large forest tract in New York or Pennsylvania.

EXTENSION WORK IN FORESTRY

The direct help given to owners of forest lands in New York State is an important feature of the work of the department. This is accomplished by correspondence, by publications, by lectures, and by personal inspection of woodlands and of lands to be planted. The only expense to the owner for a personal inspection of his land is for the necessary travel and subsistence of the representative of the department, there being no fee. One reading-course lesson, entitled "The Improvement of the Woodlot", has been published and may be obtained without charge by addressing The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y. There is no charge for information that can be given by correspondence, and the department will be glad to hear from persons interested in forestry. Letters should be addressed to The Department of Forestry, New York State College of Agriculture, Ithaca, N. Y.

GENERAL ANNOUNCEMENTS

STATE FAIR EXHIBIT

The New York State College of Agriculture is planning to have a large educational exhibit at the State Fair at Syracuse, September 9 to 14, inclusive. The professors in charge of the exhibit will be glad to take up with any persons such questions as may be of interest to them. The exhibit will be located in the State Institutions Building and will consist of individual exhibits dealing with farm crops and their production, methods of raising poultry, production of milk, care of milk, management of the soil, fertilizers and their constituents, insect pests and their control, bacterial and fungous diseases and their control, methods of improving farm crops with special attention to the improvement of timothy, production of and packing fruit for market, the woodlot and its care, farm mechanics, vegetables for the home garden, and questions pertaining to the farm home and its care. It is hoped that a large number of our readers will visit the exhibit and bring questions prepared in advance.

SIXTH ANNUAL FARMERS' WEEK

The date for the Sixth Annual Farmers' Week has been set for February 10 to 15, 1913. Societies are welcome to hold their meetings at the College at that time and this early notice is given so that the necessary arrangements can be made in advance. For further information address The Extension Department, College of Agriculture, Ithaca, N. Y.

OAT SMUT

(Donald Reddick)

Oat fields all over the State show an unusual amount of smut disease the present season. Some growers have reported as high as 80 per cent loss, while it is common to find fields showing 20 per cent of smutted heads. The method of control of this disease is so simple and so inexpensive that the whole 20 per cent may be counted as dead loss.

Two points of immediate importance have arisen: (1) There is a general opinion that grain smuts are likely to be injurious to animals. There is no evidence whatever to support this. The smut fungus is very different from the ergot of rye, which was formerly very common in this State and which is poisonous. (2) Smutty oat straw may be used on oats land, or the stu bble plowed under for other cereals if desired, with no danger of increasingthe amount of smut in those crops.

The danger of next year's oats crop comes from the spores of the smut fungus, which are lodged under the outer hull of the kernel. The smut has been very general throughout the State, and if there was dry weather at the time the smutted heads began to sift their spores the seed for next year will be generally inoculated.

Every farmer who grows any oats at all should plan to treat his seed next spring. This is a very simple process. A clean space on the barn floor, or a tight wagon box, is a good place for the treatment. Commercial formaldehyde of 40 per cent strength, commonly known as formalin, can be obtained from most druggists at a price ranging from 10 to 40 cents per pound, depending on quantity and often apparently on location. It is a colorless, pungent liquid. A pound (pint) of formalin in 40 gallons of water will treat 40 bushels of oats. Place the oats in a heap on the floor. Shovel them over slowly and sprinkle over them the diluted formalin at the rate of 1 gallon of solution to each bushel of seed. Shovel over once more and then cover the heap with canvas or blankets. The next morning the seed will be dry enough to rattle, and will run through a seeder without clogging. Use 1 peck more of seed per acre in order to allow for swelling. Any unused treated seed may be fed out without danger as soon as it is perfectly dry.

THE CONTROL OF BEAN ANTHRACNOSE BY THE USE OF SEED FROM CLEAN PODS

(M. F. Barrus)

Anthracnose, or pod spot, of beans is a disease that is usually present to some extent every year, but may become very destructive during wet seasons. The fungus causing the disease lives over winter in the spotted seed. When such seed is planted the seedlings produced are very likely to become diseased. The young leaves become badly spotted, and cankers, or sunken spots, make their appearance on the stems so that the seedling may die from the attack. Many diseased seedlings may survive, however, and if the weather continues dry during the summer the disease does not spread through the field. If a period of several days of rainy or damp weather occurs before the pods are ripe, the spores of the fungus may be scattered throughout the field from diseased plants occurring here and there but not heretofore particularly noticeable, and the pods of many plants may become very badly spotted. Such pods are unfit for market or for canning purposes. The disease also reduces the yield of dry beans, as many affected pods fail to mature their seed or the seed when mature becomes spotted by the growth of the fungus through the pod.

Vines and pods may be protected somewhat by spraying with bordeaux during the growing season; but even the most thorough applications do not entirely control the disease, and spraying on a large scale with a field machine has not proved to be satisfactory.

As the disease is introduced into the field by planting affected seed, a clean stand may evidently be obtained by planting healthy seed. Such seed must be obtained by selecting clean pods in the field, such pods being certain to control seed free from anthracnose. Seed selected after threshing is not safe to use, since it may be diseased without showing evidence of it on the surface.

If the acreage planted is small, we may select sufficient seed the preceding fall for the next season's planting; but if the acreage planted is large, it will be necessary to select seed enough for a seed plot of an acre or less, depending on the size of the main field. Here clean seed may be grown for the main crop the succeeding year. From it should also be selected the clean seed for the seed plot, which should be maintained each year. Clean seed selected in this way will give a stand of beans perfectly free from anthracnose. If the plants become infected it must be from other fields. This is not likely if one is careful to work in the beans only when they are dry, and to avoid going from a field of diseased beans into one of healthy beans.

This method, while successful in controlling the anthracnose, does not entirely control the blight, which is a bacterial disease spread largely by means of insects. The presence of blight in the field may lead one to doubt the efficiency of seed selection for the control of anthracnose, if he is not sufficiently acquainted with the symptoms of the two diseases to distinguish them.

Another serious disease of beans is characterized by the stems becoming so weakened as the plant comes into bearing that it falls over on the ground when disturbed by the wind or by other agents. The stems of some plants break entirely off and the plants die; or sometimes the stems remain attached by a few strands and some of the pods will mature. In either case the loss often amounts to 25 per cent or more. The cause of this trouble is not known and no recommendation for its control can be given at this time.

CORNELL RURAL SCHOOL LEAFLET

The September number of the Cornell Rural School Leaflet is now on the press and will be ready for distribution the first of September. This leaflet furnishes teachers with complete and accurate subject matter on the work in Nature Study and Elementary Agriculture for 1912-1913 as outlined by the New York State Syllabus. It comprises 186 pages with cover, and is fully illustrated throughout.

The names of all teachers in rural districts will be obtained from the district superintendents and a copy of the leaflet will be sent to each teacher. Teachers of elementary grades in cities and villages will receive copies of the leaflet from their superintendent, to whom copies will have been sent in bulk. All training schools and training classes will be supplied with the leaflet.

To all teachers in rural communities and in communities of 3,000 inhabitants or less, the September leaflet is accompanied by a supplement blank for the names of pupils. On the return of this blank properly filled out, the pupils are placed on our mailing-list for the children's leaflets. Three children's leaflets will be issued during the coming year, in November, in January, and in March. The children are encouraged to write letters to the College in response to these leaflets, and a small gift picture is sent to each child who writes three letters during the year.

We should like to see a special effort made during the coming year toward the improvement of school buildings and school grounds. The September leaflet contains an article illustrative of what one rural school has accomplished in this direction. The first step, after one or two persons in the community are interested, is to obtain some addition to the school property. Land is a valuable asset and will be increasingly so from year to year. We feel that the teacher, aided by the district superintendent, is the person best fitted to take the initial step in the improvement of the physical conditions surrounding our rural schools.

We are anxious to reach the older boys and girls in rural districts with a direct message from the College. We now have a list of 7,500 young men between the ages of 16 and 22, and this year we are asking rural teachers to send us a similar list of young women. As soon as our appropriation will permit we shall send these young people material that will be of special interest to them and will serve to place them in personal touch with the College. We shall be glad to receive the name of any young man or woman between these ages who would like to be placed on our lists. Address Department of Rural School Education, College of Agriculture, Ithaca, N. Y.

READING-COURSE LESSONS

The Cornell Reading-Course for the Farm Home is presenting a series of lessons on Principles of Jelly-Making and on Preservation of Food in the Home, the latter in three parts. "Principles of Jelly-Making" is a reprint of a bulletin published by the University of Illinois and is thus made available to residents of New York State. The following is an outline of the lessons on preservation of food in the home:

Part I.—Food is spoiled either by being fed upon by small living organisms, or by life processes inherent in the food which cause growth, ripening, and decay. Food preservation creates conditions unfavorable to the growth of micro-organisms; such conditions are produced by the use of very low temperatures or very high temperatures, by removal of moisture, or by one of three classes of preservatives—the harmless, the doubtful, or the harmful. Successful preservation by canning depends on the condition of the food, on impervious jars, on absolute cleanliness, and on the destruction and exclusion of micro-organisms.

Four methods of canning are described in the bulletin, and rules are given for testing canned fruit and for proper storage conditions. Directions follow for the use of harmless preservatives such as sugar, salt, vinegar, and spices. The laws regulating the use of commercial preservatives are discussed.

Part II.—Low temperatures check life processes. Hence the ice supply is of great importance in keeping the daily store of perishable food. Directions are given for making a refrigerator and an ice box.

By means of cold storage, foods may be held for seasons of non-production. Prolonged cold storage affects the wholesomeness of foods, therefore laws regulate the time that food may be thus stored. These laws are quoted.

The success of drying as a means of food preservation is proved by the number of fruit evaporators operated in the State.

Recipes are given for fruit juices, sun preserves, and cider vinegar.

Part III.—Lack of succulent foods in the winter affects health and efficiency. Storage may easily be provided for eggs, fresh fruit, and vegetables. Eggs may be preserved in limewater and salt brine, or in water-glass solution. Fruit packed in barrels, boxes, or open trays, may be kept in a well-ventilated cellar having a uniform temperature of about 33° F. and a high percentage of humidity. Special cellars or pits for vegetable storage are satisfactorily and inexpensively constructed. Burying is one of the easiest and most successful storage methods, but some of our best storage crops need special treatment and precautions.

Meat may be kept fresh by cold storage or by partial cooking and packing in stone jars; or, in cold localities, by freezing or packing in snow. It may also be cured dry or in brine, and smoked. The greater nutritive value of fresh meat makes it desirable to use as much as possible of it uncured.

The value of milk as a food should be retained in its fullest degree by care in the following essentials: procuring clean milk, protecting it from foreign odors, and holding it at the temperature of a good ice chest or refrigerator.

The lessons now available in the Cornell Reading-Course for the Farm Home are:

1. The care and feeding of children.—Part I.
3. The care and feeding of children.—Part II.
5. Household decoration.
7. Household furnishing.
9. Reading in the farm home.
11. The laundry.
13. Cornell study clubs.
15. Principles of jelly-making.
17. The preservation of food in the home.—Part I.
19. The preservation of food in the home.—Part II.
21. The preservation of food in the home.—Part III.

Note.—Even numbers are used by the Cornell Reading-Course for the Farm.

To obtain any of these lessons address the Department of Home Economics, College of Agriculture, Ithaca, N. Y.

In the Cornell Reading-Course for the Farm a lesson entitled "The Renewal of the Neglected Orchard" begins a series on fruit growing. The purpose of this lesson is to place in the hands of owners of neglected orchards definite information that will enable them to bring their orchards into the best condition of productivity. Future lessons in the series will deal with the currant, gooseberry, raspberry, and blackberry. Persons interested in fruit growing may register now for the series.

The lesson here discussed, which is now available, takes up the following important factors in the renewal of a neglected orchard: age of the orchard, change of management from sod to cultivation, cover crops to use, fertilizers to apply, methods of pruning, and plans for spraying. The question of pruning, which is one of the most important of these factors, receives special attention. Another valuable feature is a spraying plan, which is applicable to the well-cared-for orchard as well as to the neglected orchard.

Another lesson in the reading-course, entitled "Alfalfa for New York," discusses briefly the value of alfalfa, the soil requirements of the crop, and general cultural methods to be recommended for New York State.

For either of these two lessons, address The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
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L. H. BAILEY, Director

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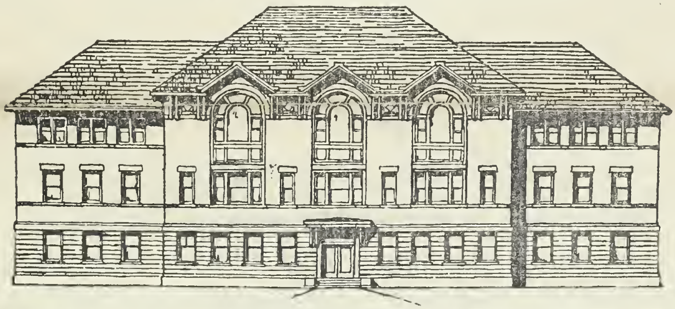
This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

DEPARTMENT OF POULTRY HUSBANDRY

The first systematic instruction in poultry husbandry to be given in the United States was provided at Cornell University in 1892, at which time ten lectures were given as an elective course to regular and special students and to students in the first winter-course in agriculture. Instruction in poultry husbandry has been given each year since it was begun. In 1903 the course was made a subdepartment of the Department of Animal Husbandry and the work was considerably enlarged; at that time an assistant professorship in poultry husbandry was created. In 1905 poultry husbandry was made an independent department, with a full professor in charge. The staff of the department now consists of sixteen persons, including one professor, one assistant professor, one instructor, six assistants, and seven helpers.



The New Home of Poultry Husbandry

Poultry husbandry has to do primarily with the production of one of the most important classes of human food. As an animal husbandry occupation it contributes an important part to the up-building of a profitable, diversified, self-sustaining agricultural practice. Because of its great adaptability to widely different conditions of environment and to the requirements of persons of large as well as moderate means who are seeking an additional source of income, daily food supply, health, or congenial diversion, the keeping of poultry touches, in some important manner, the daily lives of more persons, perhaps, than does any other one branch of agriculture.

The State College of Agriculture is endeavoring to meet the needs of the people of the State by offering poultry husbandry as one of the many important branches of agriculture. The activities of the department cover four principal divisions: to give instruction to regular, special, and winter-course students; to give assistance to persons who cannot attend the College; to investigate special problems with the object of discovering better methods of poultry management; to conduct the college poultry farm and poultry plant so that they will be of the greatest possible instructional value to students and to visitors.

Regular and Special Courses

Persons who desire to receive the most thorough training in this subject, with a view to making poultry husbandry a profession, may take the regular four-years course in agriculture leading to the degree of Bachelor of Science. Only in this way can a thorough training be obtained in the fundamental sciences underlying poultry husbandry.

Those who can devote only one or two years to college training have an opportunity to enter as special students in agriculture and to specialize in poultry husbandry. By this means many valuable courses in agriculture, which should precede or accompany courses in poultry husbandry, may be taken.

The courses in poultry husbandry that are open to regular and special students are entirely elective and occupy about one third to one half of the time for one year; or they may be extended over two or more years.

Some of the courses on which special emphasis is laid are:

Marketing of poultry and poultry products.—This course covers a careful study of marketing conditions as regards demand, supply, storage, transportation, and the like.

Judging poultry.—Lectures, demonstrations, and practice are given for one term, covering the principles of poultry judging for exhibition and for market.

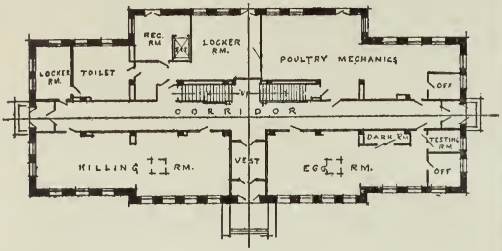
Poultry house construction.—This subject is given special consideration with a view to meeting the needs of the large and small poultry enterprises.

Poultry farm management.—The organization of the poultry farm from a business standpoint is taught, in connection with the laying out of poultry farms and the general considerations of methods of management.

Poultry feeding and care.—In this course the subject is handled from both the theoretical and the practical standpoint, and applies to the feeding of poultry for egg production, fattening, and breeding.

The Winter-Course in Poultry Husbandry

The Winter-Course in Poultry Husbandry is intended primarily to meet the needs of persons who desire to specialize in poultry husbandry and who, because of lack of money or of time, feel that they cannot spend a year or more in College. It is, therefore, a highly specialized, occupational course, combining theory with the practical application of the most modern methods of poultry farming. Students devote their entire time for twelve weeks to the various phases of poultry instruction. The course includes more than one hundred lectures and recitation periods of one hour each; thirty-eight laboratory periods of two hours each; thirty-three one-hour periods for drawing or reference reading and for keeping poultry farm accounts; eighty days practice, morning, noon, and night, in the care and management of poultry and poultry appliances, including incubation. Instruction is free to residents of New York State. No examinations are required. The course is open to both men and women.



First floor plan

The winter-course this year begins November 19, 1912, and continues until February 14, 1913. An announcement containing application blank and complete information regarding the course may be obtained by addressing Poultry Department, College of Agriculture, Ithaca, N. Y.

The Summer School in Agriculture

A brief course in poultry husbandry is given as part of the regular instruction in the summer school in agriculture.

Extension work

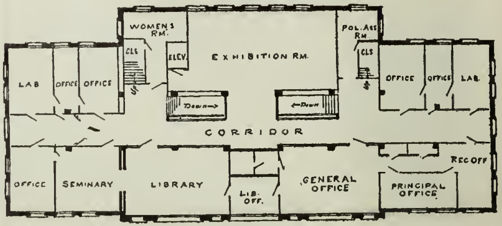
The extension activities of the department include:

(1) **Lectures.**—These are given before granges, young men's Christian associations, poultry associations, farmers' clubs, and the like.

(2) **Educational exhibits.**—These exhibits consist of photographic enlargements, charts, and models of buildings and poultry appliances. They are staged in connection with poultry shows, fairs, young men's Christian associations, farm trains, and the like, and are accompanied by a representative of the department who explains the exhibit, answers questions, gives lectures, and visits poultry farms in the neighborhood.

(3) **Farm visits.**—Members of the department staff visit farms and assist in laying out poultry plants, grading stock, and similar work.

(4) **Poultry farm surveys.**—A representative of the department visits poultry farms for the purpose of obtaining detailed information regarding the business aspects of poultry farming. For this purpose and in order to get in touch with the largest possible number of poultrymen in the State, the blank form shown below is prepared, to be filled out and mailed to the Department of Poultry Husbandry.



Second floor plan

(5) **Marketing survey.**—A special investigation of the conditions of marketing poultry and poultry products in the towns and cities of the State is being made.

DO NOT WRITE HERE
Date..............................
Survey No........................
Card No..........................
Transfer..........................
File No...........................

New York State College of Agriculture
Cornell University, Ithaca, N. Y.

POULTRY FARM SURVEY

The Poultry Department desires to cooperate with the poultrymen of New York State. We are making a study of the methods of organization and management of poultry farms in the State. We ask your cooperation by replying to the following questions, and returning this card at once by mail. Information thus received will not be made public.

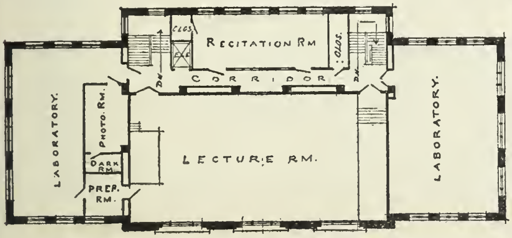
Name......................................	*How many hens do you keep?*....................
P. O. Address.............*County*..............	*Ducks?*........*Geese?*........*Turkeys?*..........
Street or R. F. D. No...........................	*What breed of hens do you keep?*.................
Acres farmed?.................................	*Mark* (X) *after the branch of poultry work which you are doing:*
Owned or rented?..............................	
Value per acre?................................	*Market eggs?*........*Fancy poultry and eggs?*......
Is your poultry business successful?................	*Market poultry?* ......*Day-old chicks?*...........

What other business do you combine with poultry keeping?..

Are you willing to have a representative of the Poultry Department visit your farm?......................

(6) **Farm trains.**—Educational exhibits are staged and lectures and laboratory work are given in cars attached to farm trains, in cooperation with the Extension Department of the College.

(7) **Breed testing.**—Briefly stated, the purposes of the Cornell breed testing station are: First, to improve the quality of New York State poultry by selection and line breeding for vigor, prolificacy, hatching power, market quality, and economy of production of eggs and flesh. This is brought about by means of careful flock selection and special care on the farms of the owners, and by official trap-nesting and pedigree hatching and brooding at a poultry station at the New York State College of Agriculture at Cornell University, Ithaca, N. Y. Second, to give impetus to the practice of better methods of housing, feeding, rearing, and general care, as a natural result of having a definite high ideal of attainment and a positive official method of determining productive merit. Third, to obtain information in regard to the variability in productive characters existing between the classes, breeds, varieties, and strains of poultry and of individuals of a given strain or flock. Fourth, to suggest important lines of research that should be undertaken in order to discover new truths and to establish principles that will assist in developing a more successful practice in poultry husbandry. Printed rules for breed testing work may be obtained on application to the department.



Third floor plan

(8) **Cooperative record-keeping.**—Blank forms are prepared, giving directions for feeding the Cornell rations and providing a monthly record for keeping account of egg production, cost of food, mortality, and so forth.

(9) **Reading-course lessons** are prepared, to be issued as a part of the Cornell Reading-Course for the Farm. Two lessons are available on incubation and one on feeding young chickens.

(10) **Lessons for the rural schools.**—A series of eleven lessons on poultry, and twelve articles telling some things that boys and girls should know about keeping poultry, have been prepared as part of the series of lessons issued by the Department of Rural School Education at Cornell.

(11) **Visitors.**—Members of the department staff are always glad to welcome visitors, to show them the plant and the poultry farm, and to explain the work of the department.

(12) **Correspondence.**—Correspondence is welcomed with persons who feel that the department can be of assistance to them.

(13) **Poultry Institute.**—Each year a special program is prepared to meet the needs of persons who visit the College during Farmers' Week, which will be held this year in the week of Lincoln's birthday, Feb. 10 to 15.

(14) **State Fair exhibits.**—Lectures and demonstrations are given daily in a large tent. Fowls are killed, picked, and packed, eggs are graded and tested, rations are prepared, by representatives from the department. These and other demonstrations are repeated many times each day.

Investigation

An important part of the work of the Department of Poultry Husbandry is the search for new truths by conducting experiments with poultry. One hundred and four projects have been under investigation since the department was established. Special studies have been undertaken in comparing the types, different breeds, and varieties of poultry; many observations have been made to discover external characters, such as type, late molting, and the like, by which the high and the low producers may be distinguished; several houses of various types have been tested as to their effect on egg production, and as a result special plans for poultry houses for various purposes, including the New York State gasoline-heated colony house for rearing chickens in flocks of three hundred, have been designed.

Eleven experiment station bulletins, eight reading-course lessons, eleven lessons for rural schools, and twelve lessons for boys and girls have been published to date. All are out of print, however, except Bulletin 282, on "Seven Methods of Feeding Young Chickens," three reading-course lessons on incubation and feeding young chickens, and several lessons for rural schools, and for boys and girls. An experiment station bulletin entitled "Constitutional Vigor in Poultry" is now in print.

The new Poultry Husbandry Building

The main administration building is one hundred and thirty-two feet long by forty-eight feet wide and contains three stories, attic, and basement. This building, which will be occupied for the first time this fall, was designed especially to be the home of the Poultry Department and was built by the State at a cost of approximately ninety thousand dollars. It contains a lecture room with a seating capacity for about two hundred and fifty persons; recitation rooms; laboratories for instruction and research; an incubator cellar; rooms for killing, picking, and packing poultry and for testing and grading eggs; a cold storage room for eggs and meat; locker and lavatory rooms; offices; an educational exhibit room; a photographic laboratory; and other rooms.

Equipment of the department

The Poultry Department occupies fifty-six acres of land. Fifty acres constitute the poultry farm, located about one mile from the campus of the College of Agriculture; a plot of six acres, adjacent to the Agricultural College group, is used for the poultry plant. The farm is utilized for growing crops for the poultry and for rearing annually about four thousand chickens in the New York State gasoline-heated colony houses. The poultry plant contains laying and fattening houses, having seventy-two pens with a capacity for about two thousand fowls.

The stock kept by the department for teaching and investigational purposes comprises ducks, geese, and fowls of fifteen varieties.

The equipment for teaching, investigating, extension work, and general administration, costing approximately twenty-two thousand dollars, includes models and scientific apparatus especially designed for or adapted to the poultry work; nine hundred and twenty-five lantern slides; twenty-six hundred and fifty-four negatives; and many photographic enlargements.

Opportunities in poultry husbandry

Poultry husbandry offers attractive opportunities to persons who have the natural qualifications and a reasonable amount of practical farm and poultry experience, and who have successfully completed a thorough course of instruction in poultry keeping. These opportunities are of a widely different nature. They include:

(1) The keeping of poultry for eggs, meat, exhibition, or breeding purposes, as a major or minor branch of farming. The upward tendency of prices of poultry products, together with our increased knowledge of successful methods of production and marketing, offer more attractive inducements for commercial poultry-keeping now than ever before. As a result, more than one half of the students who specialize in poultry husbandry engage in some branch of commercial poultry-keeping.

(2) The managing or superintending of poultry farms for others. The supply of properly qualified persons to fill these positions, at salaries of forty to one hundred dollars per month or more, is not equal to the demand.

(3) Assisting in poultry departments of the agricultural colleges and experiment stations. The recent rapid development of poultry departments has created an unprecedented demand for persons who possess ability, character, training, and other qualifications to teach and to conduct investigations in poultry husbandry.

(4) There is a growing demand for persons especially trained as poultry judges, institute lecturers, writers, salesmen, and government inspectors.

The New York State College of Agriculture is endeavoring to provide instruction which shall prepare persons to qualify in each of the fields open to poultrymen.

STATE FAIR EXHIBITS

HOME ECONOMICS

The Department of Home Economics will exhibit at the State Fair food charts and a dietary study, and will illustrate table-setting and serving, physical attitudes in housework, house plans for ease in work, and plans for simple and attractive house decorations.

In addition the exhibit will include competitions between the fifty Cornell study clubs. The competing clubs are each to submit three loaves of bread—one white, one graham, and one corn—which are to be made and judged in accordance with the following regulations and score card. Each club has the choice between appointing a committee to prepare its exhibit, or conducting a preliminary contest of its own and sending to the fair the three loaves ranking highest in the estimation of an appointed jury.

Each competing club is also to submit a dress for the woman in the farm home to wear in her kitchen and about her work, which, as suggested by the score card, shall be simple, attractive, easy to make, easy to launder, adapted to its purpose, neatly made, and of well-selected fabric and color.

Regulations for bread contest

In the competition for the best loaf of bread, each competitor must:

1. Exhibit a loaf of bread made in accordance with the following specifications:
   - (a) The loaf must be baked in a pan about 9½ inches long and 5½ inches wide, measured across the top. These pans will be furnished if desired, the pans to be returned.
   - (b) The materials used must be: white flour, granulated sugar, firm white lard, yeast, salt, water.
   - (c) The bread must be baked the day before it is sent to the fair for exhibition. (Several loaves may be made, and the best selected.)
2. Send in written report covering the following points:
   - (a) Brand of flour and kind of yeast used. The amount and cost of each of the materials used.
   - (b) How mixed and set to rise, number of times set to rise before baking, for how long, and at about what temperature.
   - (c) Baking of loaf: Time of baking; care after baking.
   - (d) Number and value of hours of labor consumed in making and caring for loaf. Total cost of loaf, and estimated number of loaves that could have been made in the time consumed in making one.

Score card for bread

Flavor, taste, odor	40 points
Texture of crumb: Lightness, doughiness, color, moisture	35 points
Texture of crust: Color, hardness	10 points
Form of loaf	5 points
Written report	10 points

Score card for work dress

Choice of design: Simplicity, attractiveness, ease of making, ease of laundering, fitness for purpose	60 points
Neatness in making	20 points
Choice of fabric	10 points
Choice of color	10 points

PLANT PATHOLOGY

The Department of Plant Pathology will have a large exhibit at the State Fair, occupying forty feet of space along one side of the Horticultural Building. All the commoner diseases of orchard, field, and garden will be well represented by fresh specimens and by mounts of preserved materials. A large number of specimens of the diseases of flowering plants recently used at the meeting of the American Florists Association held at Chicago will be exhibited here. A demonstration will be given each day showing the correct method of cutting out and treating cankers of apple and other trees. The instructors attending the exhibit will be glad to answer inquiries regarding plant diseases and to point out the best methods for their control. The purpose of this exhibit is educational and practical. It aims to teach visitors to know the plant diseases affecting their crops and to learn how to control them.

GENERAL ANNOUNCEMENTS

THE DEPARTMENT OF PLANT-BREEDING ORGANIZES WORK FOR IMPROVEMENT OF THE TIMOTHY CROP

(C. H. Myers)

The Department of Plant-Breeding of the New York State College of Agriculture has started some important work for the improvement of the timothy crop. For several years Doctor Webber and his associates have been breeding and selecting timothy and they have isolated a large number of different types, or varieties, many of which are superior to the ordinary commercial stock. Only very small amounts of seed from these new sorts are available.

In order to increase the amount of seed, and at the same time to demonstrate the importance of individual selection of timothy plants, a contest has been organized in Jefferson county in cooperation with the Jefferson County Farm Bureau. Small quantities of seed of one of the best of the new varieties have been furnished to those farmers who are willing to conduct the work. This seed is to be handled carefully, under the supervision of the Department of Plant-Breeding. In this manner a large number of fully developed plants, coming from a pure variety, may be obtained. This will require two seasons growth. At the end of that time it is proposed to have a timothy contest at the local fair, in which each contestant will enter the ten best plants produced in his breeding plat. Liberal premiums will be offered and it is expected that these will bring forth an exhibit rivaling the corn shows, which have had such a strong influence in the betterment of the corn crop. A large number of farmers have entered the contest and its success is already assured. As soon as possible similar contests will be organized in other sections of the State where timothy is an important crop.

DEPARTMENT OF POMOLOGY

(C. S. Wilson)

As the harvesting time draws near it is fitting to call the attention of growers to the better grading of apples. In particular, this work is being emphasized by growers in Virginia, West Virginia, and Canada, not to mention the fancy fruit that is sent east by the Westerners. The New York product must meet this competition, and hence the growers should put up an honest and attractive pack.

An important point to consider is the separation of the different sizes of fruit. Hitherto growers have not made any distinction as regards size. If such distinction could be made, the resulting pack would be rendered more attractive. In this connection it is well to consider the laws of New York State relating to the grading of apples according to size. A copy of the laws may be obtained from the State Department of Agriculture at Albany. If these grades are used, the pack must conform to the regulations.

Some growers may be planning to use the box as a package for the apple. Full directions for putting up this pack are contained in Bulletin 298, "The Packing of Apples in Boxes," which will be sent to residents of the State on request.

THE WINTER-COURSE IN AGRICULTURE

Attention is called to the opening of the winter-courses this year on November 19. This is nine days earlier than was the case last year. Correspondence concerning these courses may be addressed to The Secretary, College of Agriculture, Ithaca, N. Y.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

POWER PLOWING DEMONSTRATION

(Department of Farm Mechanics)

Power plowing with gas tractors has been so successful in the great areas of the West and the Northwest, and has been given so much prominence by the press, that the eastern farmer is beginning to wonder whether or not the use of the tractor would be profitable for him on his smaller, rougher, and more diversified farm.

To meet the demand for information on this subject the Department of Farm Mechanics is now arranging for a public demonstration of tractor plowing to be given on the college farm on Thursday, Oct. 24. Owing to the character of the soil to be plowed the demonstration cannot be held if the ground is not so dry as it should be to be fit to plow with horses. If the ground is too wet for plowing on the 24th of the month, the demonstration will be held on the first day thereafter that the ground is fit. Those desiring to be especially notified should write direct to the Department of Farm Mechanics. Notices will appear in the agricultural papers and in a number of daily papers.

It is definitely arranged that three tractors will be on hand and it is hoped that one or two more can be arranged for. There will be two with regular tractor wheels, and one with what is known as the caterpillar tread. One will have a one-cylinder engine, one two cylinders, and one four. The demonstration is not intended to be a competition, with judges and elaborate tests; it is merely what its name implies, a demonstration at which any one sufficiently interested to attend can see for himself just how the different types of tractors operate in plowing. The plowing will be done on heavy Dunkirk clay, of which most is in sod but some is in corn stubble. Most of the land is gently rolling, but part of it is sufficiently rough to give a good idea of how the machines will work on hills.

ANNUAL FRUIT EXHIBIT

(Department of Pomology)

The Sixth Annual Fruit Exhibit of the New York State College of Agriculture will be held November 7, 8, and 9. The exhibit, which is held under the direction of the Department of Pomology, has steadily increased in size and importance from year to year until at the present time it is one of the most comprehensive and complete exhibits held in this State. It includes not only fruit grown in New York State, but also representative collections from all the principal fruit-growing sections of the country. Its purpose is mainly educational. It enables the students in the College to become acquainted with varieties of fruits and their adaptations and variations as grown under different conditions.

The work involved is performed entirely by students in the department. They collect and put up the fruit, and the judging is done by advanced students who have had training along this line. The prizes consist of ribbons, which are sent out to the winners immediately following the exhibit. The fruit itself is used for laboratory work during the remainder of the year.

The department relies chiefly on the fruit growers of New York State to make the exhibit a success. It will welcome contributions including all kinds of fruits from any source, and will gladly pay the expense involved in sending the fruit. The packages should be plainly marked with the name of the grower, and should be sent to the Department of Pomology, New York State College of Agriculture, Ithaca, N. Y.

CORNELL STUDY CLUBS' EXHIBIT

(Department of Home Economics)

In the home economics exhibit at the New York State Fair at Syracuse, space was given for a display from the Cornell study clubs of house work dresses and of white, graham, and corn bread. A prize was offered for the best of each article. The prize for the best work dress was given to the Fredonia Study Club, for the white bread to the Richmondville Club, for the graham bread to the Yorkshire Club, and for the corn bread to the Worcester Club. The members of these clubs are farm women who are registered with the College of Agriculture for a course of reading in home economics.

THE WINTER-COURSES

The Winter-Courses will begin November 19, 1912, and will close February 14, 1913. They are business and occupational courses, not academic; hence, there are no examinations for admission. Any one who has graduated from the common schools of the State, or who has an eighth grade certificate, should be able to do the Winter-Course work satisfactorily. All the courses are open to both men and women of at least eighteen years of age. Many persons of mature age attend the courses each winter with profit. Tuition in the Winter-Courses is free to residents of New York State. Non-residents pay a tuition fee of $25.

The courses are as follows: General Agriculture, Dairy Industry, Poultry Husbandry, Horticulture, and Home Economics. Correspondence concerning the courses may be addressed to The Secretary, College of Agriculture, Ithaca, N. Y., or to the department giving any one of the courses.

WINTER-COURSE IN DAIRY INDUSTRY

In addition to the regular 1912-1913 Announcement of Winter-Courses issued by the College, the Department of Dairy Industry has published a supplement which should accompany that announcement when sent to prospective students in the Dairy Course. The supplement consists of a series of photographs illustrating various lines of instruction offered by the department in the Winter-Course. The supplement was not issued so soon as the regular Winter-Course Announcement, but an effort has been made to send it to all those interested in dairy industry who received that announcement. Those desiring the supplement may obtain it by writing to the Department of Dairy Industry, Ithaca, N. Y.

THE SIXTH ANNUAL FARMERS' WEEK

Attention is again called to the change in the date of Farmers' Week, which is held annually at the New York State College of Agriculture. This year Farmers' Week will be held February 10-15, 1913. A cordial invitation is extended to associations to hold their winter meetings at the College at this time. Last year nine organizations accepted and it is expected that others will avail themselves of the opportunity this winter.

Farmers' Week is a week for the gathering at the College of farmers, farm women, and others interested in country life. Lectures and demonstrations by members of the faculty, by successful farmers, specialists, and others who have achieved distinction in agriculture, are given throughout the week. The program will be so arranged that one may follow a definite and connected line of work, as, for example, lectures and demonstrations throughout the week on dairying or on poultry raising, fruit growing, growing of general farm crops, and the like; or one may devote his entire time for the week to economic, social, and educational questions. Opportunity will be afforded each person to take an active part in the discussions, conferences, and demonstrations, which mark the week as a school rather than as a series of lectures.

One of the best ways to make Farmers' Week of lasting value to the community is to follow the example of societies, such as granges and reading-course clubs, which have sent delegates to Farmers' Week. The organizations pay the delegates' expenses and instruct them to take careful notes and to report to the home organizations at their meetings. This is a real help to the educational work of any organization.

FARMERS' WEEK FEATURES OF INTEREST TO DAIRYMEN

(Department of Dairy Industry)

During Farmers' Week, which is to be held February 10 to 15, 1913, the Department of Dairy Industry will make a special feature of the importance of cooling milk. Milk is one of our best and cheapest foods, but its value as a food depends to a great extent on its sanitary condition. The question of sanitary milk is of interest alike to producer and consumer. To the producer, clean milk means a steady, sure market at the best prices, with little loss of product. To the consumer, clean milk means the assurance of obtaining one of the best foods at a reasonable price. In order to keep milk in a sanitary condition for any length of time, it is absolutely necessary to keep the milk cold. Even with a small initial contamination, milk kept at a warm temperature will soon become unfit for human use. This department will show, by means of charts and photographs, the effect of different temperatures on the keeping quality of milk, will illustrate the different methods by which milk may be cooled, and will point out those methods of cooling that are most practicable for the ordinary milk producer.

The Department of Dairy Industry is to make a special effort to have as many as possible of the former Winter-Course dairy students visit the College during Farmers' Week. There are hundreds of young men who have taken the Winter Dairy Course and many of these men are now actively engaged in the dairy business. It is of advantage and interest to both the department and its former Winter-Course students that as many as possible of the latter visit the department during Farmers' Week.

In order to make a visit of former students especially attractive, the department will hold a butter- and cheese-scoring contest during one day. This contest is open to any former Winter-Course dairy student and it is urged that every one who is eligible take part in the contest, the exact date of which will be announced later. First and second prizes will be awarded in both butter and cheese classes.

Other notices of the special features of the week will be given from time to time through the Announcer and through the public press.

COOPERATION WITH VEGETABLE GROWERS

(Department of Horticulture)

The Department of Horticulture wishes to be in close touch with the vegetable growers of the State for the purpose of aiding in the solution of their problems. An extension lecturer in vegetable gardening has been appointed to assist as far as possible in the farmers' institutes, extension schools, vegetable growers' organizations, and the like. It is expected that the lecturer will spend much of his time among the growers studying their needs, carrying on demonstration experiments, and aiding them in such ways as he may be able. In addition to assisting the commercial vegetable growers, it is the purpose of the department to disseminate information about home vegetable gardening. The department is ready to answer promptly inquiries regarding the culture of various vegetables in New York State. Communications should be addressed to the Department of Horticulture.

COOPERATIVE EXPERIMENTS IN FARM CROPS

(E. R. Minns)

Interest in alfalfa growing extends into all parts of the State The problem of starting alfalfa may include the selection of suitable soil, the application of manures and lime, the use of sufficiently hardy varieties of alfalfa seed, the thorough preparation of the seed bed and the choice of seeding time.

A number of farmers in certain sections of the State are trying to grow this valuable crop in experimental plats designed to demonstrate the value of lime, manure, and inoculation in each particular case. A smaller number are making a trial of white sweet clover as a possible substitute or preparation for alfalfa growing.

Soy beans for silage and seed production have been planted by twenty-five farmers in cooperation with the College of Agriculture. Failure resulted in three cases, but in most of these experiments the soy beans have been better able to survive the adverse weather conditions than has the corn planted with them in the experiment. Inoculation with a commercial culture of nitrogen-gathering bacteria has produced tubercles on the roots in e[illegible] menters are enthusi[illegible] the best of these experiments is located at Easthampton, Long Island, on sandy loam soil. A very excellent growth is also reported from Jefferson county.

Nine well-separated experiments with winter vetch sown with rye have been begun. These are all sown on soils that need building up in fertility. All are to be inoculated with nitrogen-gathering bacteria, and the crop will be used experimentally in four different ways if the vetch lives through the winter. It seems certain that more interest must be taken in the home production of the seed of this valuable plant before its use can be generally recommended.

A READY METHOD FOR BALANCING A RATION FOR DAIRY COWS

(Devised by Department of Animal Husbandry)

The ordinary coarse foods in use in the State of New York are mixed hay, corn silage, and corn stalks or fodder. These are all very similar in composition as far as the balance between protein and carbohydrates is concerned.

The ration then is usually balanced on the grain food.

Ordinary grain foods may be conveniently divided into three groups: low protein (less than 12 per cent), medium protein(12 to 25 per cent), and high protein (over 25 per cent).

For the sake of variety it is desirable to use at least three grain foods.

If one low protein food, one medium protein food, and one high protein food are mixed together, equal parts by weight, the mixture will make a well-balanced ration to be used with ordinary mixed hay silage or corn fodder.

If clover or alfalfa hay is largely used, less high protein food is necessary.

In addition to what hay and silage she will readily eat, a cow in full milk giving 4-per cent milk or better should have one pound of grain to 3 or 3½ pounds of milk daily; a cow giving milk with less than 4 per cent of fat should have one pound of grain to 3½ or 4 pounds of milk. An ideal grain ration should weigh about one pound to the quart. In order to secure this, the mixture should contain at least one "light" food.

In the following table, "heavy" foods are in dark faced type "light" foods in ordinary type.

LOW PROTEIN GROUP *Less than 12 per cent total protein*		MEDIUM PRO'N GROUP *12 to 25 per cent total protein*		HIGH PROTEIN GROUP *More than 25 per cent total protein*	
Corn	10.3	Wheat bran	15.4	Malt sprouts	26.3
Oats	11.4	Mixed wheat feed	16.3	**Linseed Oil Meal**	33.9
Wheat	11.9	Standard wheat mid'gs	16.9	**Cotton Seed Meal**	45.3
Rye	11.3	**Flour Wh't Middlings**	19.2	**Gluten Feed**	25.0
Barley	12.0	**Cotton Seed Feed**	20.0	Brewers' dried grains	25.0
Buckwheat	10.8	Buckw't f'd(shuck in)	18.3	Distillers' dried grains (corn)	31.2
Hominy Chop	10.5	**Pea Meal**	20.2	**Buckwheat midg's**(free from shuck)	26.7
Dried beet pulp	8.1	**Cull Beans**	21.6		
Corn and cob meal	8.5				

WHITE GRUBS AND THEIR CONTROL

(Glenn W. Herrick)

Every season the Department of Entomology receives many complaints of injuries by white grubs, and during the past summer the reports have been more numerous than usual. White grubs are among our most common pests of corn, potatoes, strawberries, and garden crops. They are large, white, grub-like larvae, an inch to an inch and a half long with brown heads, six rather long, conspicuous legs, and fat abdomens, the posterior ends of which are usually dark-colored. The grubs may be easily recognized by their characteristic habit of lying in a half-curled position in the soil. They are the young or immature stages of our familiar May beetles, or June bugs.

Life History.—Not so much is known about the life history of May beetles as about many other insects, for most of their lives are spent as white grubs under the ground where they cannot easily be observed. It is known, however, that the eggs of some of the beetles, and probably of all, are laid in balls of earth three or four inches below the surface. The eggs are white and about the size of bird shot, and are laid in late May or in June by the mother beetle. Probably most May beetles choose grassland—old meadows and pastures—in which to deposit their eggs, although the eggs may be laid in other fields and in gardens. They [illegible] in a month or often less, and the young grubs feed on the roots of the grass until cold weather. Then they burrow down into the earth for protection from the cold and remain there until spring. As warm weather comes they return near the surface and feed again all summer. During their second summer they are larger, eat more voraciously, and commit more injury. They winter over once more and during the second spring they do more damage than ever. In July of the third summer the white grubs burrow downward, form small earthen cells and change to pupae. In August and September the pupae transform into full-grown May beetles; but the beetles quietly remain there in the ground until the following spring, when they crawl out and begin to come in through our windows at night. Thus it is seen that these beetles spend at least three years of their life in the soil.

Habits and Injuries.—Apparently the favorite food of white grubs consists of the roots of grasses and of grass-like plants. Evidently the beetles deposit their eggs very lagrely in old meadow and pasture lands, where the grubs, when they appear, will find an abundance of food. No doubt white grubs are nearly always present in meadows and pastures in greater or less numbers and are likely to increase the longer the sod stands. It usually happens that so long as the grasslands are left undisturbed, the injuries of the white grubs are unnoticed because of the abundance of their food plants. As soon, however, as the grass roots are killed by the plowing of the land and then corn is planted thinly on the field, injury by white grubs begins to be noticeable, although the grubs may not be any more numerous in the cornland than they were in the grassland. While the grass is on the soil each grub may have a dozen plants to gnaw on, thus injuring none of them seriously; but when the thin crop of corn is planted there may easily be one or more grubs to each hill, in which case the corn is bound to suffer. It often happens, however, as it has happened this year, that white grubs suddenly increase in numbers and become very abundant and injurious even in grassland. Several complaints have been received this year of the grubs' having destroyed all the grass in lawns and fields, besides attacking potatoes and strawberries. Evidently this is a white-grub year.

The Control of White Grubs.—From what has just been said it will be seen that corn, oats, and other grass-like plants and potatoes are liable to injury from white grubs when sown or planted on newly turned sod, especially if the sod is more than two years old. Perhaps the most effective way of preventing the ravages of white grubs is to practice a three- or four-years rotation. Moreover, the department believes this to be, in the majority of cases, the most approved method of farming from a purely agricultural point of view. It is noticeable that the best famers, following the most approved methods of crop production, are the least troubled with these pests. By practicing a three- or four-years rotation, land is not allowed to remain in grass longer than two years at most and the white grubs are thus prevented from getting a strong foothold. The writer has been informed that the strawberry growers of New Jersey are so strongly impressed with this idea that they do not allow their berries to make more than one full crop on the same soil. If the plants stand longer they are very likely to become infested with the grubs. Therefore the department would advise in general: *Rotate crops in order to prevent injury from these pests.*

A practical and very successful potato grower practices the following rotation: The old sod is broken and followed by potatoes. With this crop considerable injury often results from the white grubs. The potatoes, however, are followed with winter wheat seeded to clover. The clover is plowed in the fall and followed by potatoes the next spring. In this second crop of potatoes there is seldem any injury, and in the succeeding crops, produced by the same system of rotation, this grower has no injury from white grubs.

It is fairly well established that corn is much more likely to be injured by white grubs if planted on sod than if it follows clover or small grains. One always runs some risk in following old sod land with corn, although, of course, this may be done in some seasons without serious injury. If one is threatened with these pests an effort should be made, first of all, to clear the grubs from the grassland that is to be planted with corn. In certain instances, where the seriousness of the situation may demand rather extraordinary measures, it might be advisable to turn the sod under in midsummer or just after the hay crop is removed. Occasional cultivation of the plowed field would have to be made in order to prevent the growth of all vegetation during the remainder of the season. This method of treatment will destroy the food of the grubs and thus starve many of them. Then if no vegetation is allowed to start on the land until late the following spring, more of the grubs may be starved and the corn further protected from serious injury. The writer does not believe, however, that it is good agricultural practice to allow lands to lie fallow foe so long a time, and would suggest such practice only in extreme cases.

Pigs are excellent agents for ridding infested soil of white grubs. They will root over the whole surface of a field and catch every grub within reach, even going to a depth of a foot or more in quest of the insects. In a very interesting experiment by Professor Forbes of Illinois it was found that one hundred pigs and eight sows destroyed in twenty-seven days over 99 per cent of the white grubs in a badly infested ten-acre field.

A dilute solution of kerosene emulsion has been used successfully, in one instance at least, to kill white grubs in infested lawns. The surface soil was thoroughly wet with the emulsion and then freely soaked with water for some days. It was thought that the water carried the oil into the soil. The writer would suggest the application of a ten per cent solution of kerosene emulsion to lawns badly infested with these grubs. A liberal amount of the emulsion should be applied, and then followed by a thorough soaking of the soil with water every day for two or three days to carry the oil down into the earth and bring it in contact with the grubs.

A writer in "The Rural New Yorker" recommends the use of carbon bisulfide for destroying white grubs in strawberry fields. He directs that one to three holes be punched in the dry soil four or five inches from the crown of every infested plant. Into each hole he pours half a teaspoonful of the liquid and then quickly stops the mouth of the opening with dirt. The liquid is applied toward evening, when the earth is cooling. This grower reports excellent results and says that no plants were injured, and under the few that were taken up for examination dead grubs were found in almost every instance. The writer has had no personal experience with carbon bisulfide for destroying white grubs and would advise caution in using it. There is always more or less danger of killing the plants by the liquid coming in contact with the roots. The writer would advise trying this material on a few plants at first, if one thinks of using it at all.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 283.—THE CONTROL OF INSECT PESTS AND PLANT DISEASES

The third revision of this bulletin has just been issued by the departments of Entomology and Plant Pathology. The bulletin contains a brief description of the more common insect pests and plant diseases, with the latest recommendations for their control. Directions are given for the preparation and use of the standard insecticides and fungicides, and a general plan for spraying the apple and the peach orchard is added for the guidance of the beginner in spraying.

BULLETIN 317.—FURTHER EXPERIMENTS ON THE ECONOMIC VALUE OF ROOT CROPS FOR NEW YORK

For seven years the Cornell University Agricultural Experiment Station has conducted experiments with root crops. Four bulletins have been published on the subject and the editions of these bulletins exhausted. The present bulletin summarizes the conclusions given in the previous ones and describes some practical experiments with root crops during the years 1908-1911 inclusive. As a result of these experiments it was found that mangels constitute the best root crop to grow for live stock under local conditions.

The most useful varieties of mangels are the Long Red and the Half-sugar. They produced a fair yield of roots with a high percentage of dry matter. In comparison with mangels and the other root crops that were tried, some varieties of silage corn were grown. Comparing the mangels with the most dependable variety of corn, it was found that the dry matter produced in the crop of mangels cost twice as much in seeds, fertilizers, and labor as the dry matter produced in the crop of corn. Why this is true is illustrated by analyzing the various operations in growing the two crops. The cost of cultivation and harvesting for root crops is much greater than that of the same operations in corn growing, largely because of the hand labor required for the former.

The results of cooperative experiments with corn and mangels in different parts of the State during three years showed a close agreement with the trials on the university farm, but the scale of costs was lower. The results of similar experiments at other stations are summarized in tabular form.

There will always be some farmers who find it advantageous to grow root crops for stock feeding under certain conditions. For the benefit of those farmers, the culture of mangels, carrots, rutabagas, and common turnips is discussed and cultural directions are given in this bulletin.

CIRCULAR NO. 12.—THE CHEMICAL ANALYSIS OF SOIL

The large number of requests for analyses of samples of soil sent by residents of the State to the College of Agriculture, has made it advisable to publish a brief circular giving a statement of the policy of the College in such matters These requests generally arise from the belief that by a chemical analysis the fertilizer requirements, and sometimes the crop adaptation also, may be determined, but this is not true A chemical analysis may be helpful in interpreting the needs of a soil but it is only one of many factors that must be considered

The circular explains three group of factors that are responsible for the insufficiency of a chemical analysis, including in this explanation a statement of the average composition of a normal soil in the important plant food constituents; the circular gives also a statement of the approximate amount of these constituents used in an average acre yield of the common crops. A knowledge of the chemical character of the soils of the State is being gained as rapidly as facilities permit, by means of a systematic chemical study of important soil types. Suggestions are given concerning the practical features in soil management that should be observed concluding with a list of three books on the subject of the soil.

CLASSIFICATION OF THE MAILING-LIST

As heretofore, bulletins of general interest will be sent to all persons on the mailing-list, so far as the size of the editions will allow. However, in the case of bulletins of special or local interest, a system has been inaugurated whereby they will be distributed only to those persons who have indicated their desire to receive information on the subjects treated. This eliminates the great waste in sending literature to persons who cannot learn from it how to better conduct their farming operations, and enables a more general distribution of bulletins. Eight subjects have been used in the classification, as follows: apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Persons on the mailing-list have indicated one or more of these subjects as being of importance to them and they receive the appropriate bulletins. Heretofore a rough system of sending bulletins to certain counties or sections of the State was necessary because of the large number of persons on the mailing-list. Now the bulletins are addressed to those persons interested in the subjects treated, in whatever part of the State they may be located. Hereafter, persons requesting to be placed on the mailing-list will receive a classification card to be filled out and returned. Persons on the old mailing-list, from which the new classified list has been prepared, who have not returned their classification cards, will receive a second card which should be filled out and returned; otherwise, their names will be dropped from the list.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Address Mailing Room, College of Agriculture, Ithaca, N. Y.

Bulletins:

154. Tables for computing rations for farm animals.
219. Diseases of ginseng.
262. Apple orchard survey of Tompkins county.
265. On certain seed-infesting chalcis-flies.
266. The black rot of the grape and its control.
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it.
282. Seven methods of feeding young chickens.
283. The control of insect pests and plant diseases.
285. The cause of "apoplexy" in winter-fed lambs.
286. The snow-white linden moth.
289. Lime-sulfur as a summer spray.
291. The apple red bugs.
292. Cauliflower and brussels sprouts on Long Island.
293. The black rot disease of grapes.
295. An agricultural survey of Tompkins county.
297. Studies of variation in plants.
298. The packing of apples in boxes.
301. Sweet pea studies—I.
302. Notes from the agricultural survey in Tompkins county.
303. The cell content of milk.
305. The cause of "apoplexy" in winter-fed lambs.
307. An apple orchard survey of Ontario county.
309. The production of "hothouse" lambs.
310. Soy beans as a supplementary silage crop.
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1. Testing the germination of seed corn.
3. Some essentials in cheese-making.
4. Soil drainage and fertility.
6. Suggestions concerning treatment of seed corn with deterrents against crows.
7. The relation of lime to soil improvement.
8. The elm leaf-beetle.
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(Department of Animal Husbandry Circulars.) The formation of cow testing associations.

ANNOUNCER OF THE COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office, Ithaca, N. Y.

L. H. BAILEY, Director

VOL. 2 ITHACA, N. Y., NOVEMBER, 1912 NO. 2

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

POTATO SHOW—FARMERS' WEEK

The Department of Farm Practice and Farm Crops proposes to hold a potato show during the next annual Farmers' Week. The potato crop is one of the most important in the State. Many fine specimens have been grown this year and should be shown in competition for prizes at the College of Agriculture in February. Now is the time for potato growers to begin selecting specimens for this purpose. Each exhibit must contain not less than three pounds of whole tubers. Several pounds should be selected now and carefully stored until the time for the show arrives. The College will pay transportation charges on all exhibits and these will become the property of the College at the close of the show, unless the owner claims the exhibits in person. Plates will be furnished for all exhibits and suitable prizes awarded for the best exhibits of all varieties true to name. A sweepstakes prize will be given for the best exhibit of any variety.

In connection with the show, a program of special interest to potato growers will be conducted during one day of the week. Papers and discussions by successful potato growers covering the most important phases of potato culture will be heard. Each potato grower present will be given an opportunity to get accurate and up-to-date information on the subject. The special problems of potato culture will be given careful attention. At some time during the program it is proposed to organize the potato growers of New York into an association for the purpose of promoting the industry by educational means. There is good reason to believe that so important a farm and garden crop deserves recognition of an organized kind and no better time can be found for such a step than next Farmers' Week.

Details of the program, the rules of the potato show, and the prizes to be offered, will be published later; but now is the time to begin preparing for a splendid exhibition and a profitable meeting.

THE THIRD ANNUAL MEETING OF THE NEW YORK STATE VEGETABLE GROWERS' ASSOCIATION

The Department of Horticulture again entertains the New York State Vegetable Growers' Association for its annual meeting. The sessions, to be held during Farmers' Week, will be open to all vegetable growers, and a program of papers and round-table discussions led by some of the most successful growers of this and other States is being planned. There will be an exhibit of equipment and of methods of interest to vegetable men. The dates of the meeting are February 11-13, inclusive.

HOME GARDEN DAY

(Department of Horticulture)

The home garden is to receive special attention on one of the days of Farmers' Week. The morning period will include lectures and question-box discussions on the growing of vegetables and flowers at home. In the afternoon there will be a demonstration of methods of sowing seed, of handling plants, and of equipment useful in this work. All who are interested in these matters, whether living in town or country, are invited to attend the sessions.

MEETING OF NEW YORK STATE FEDERATION OF FLORAL CLUBS

The New York State Federation of Floral Clubs will hold its annual meeting at the New York State College of Agriculture during Farmers' Week. The Federation was organized one year ago and is in a flourishing condition. An interesting program for the two days is in preparation, and a large exhibit of plants and flowers will be staged by the leading florists of New York and other States. Many members have expressed a desire to visit the Agricultural College to see what it is doing for the florists of the State, and a large attendance is expected.

FARMERS' WEEK EVENTS OF INTEREST TO FRUIT GROWERS

The following lectures will be given during Farmers' Week by the Department of Pomology:

The Problem of the Neglected Orchard.
Fruits for the Home Orchard and Garden.
The Pruning of Fruit Trees.
Varieties and Planting Plans for the Orchard.
The Grading and Packing of Fruit.
The Co-operative Marketing of Fruits.

The subjects for lectures will be added from time to time as their need and importance becomes apparent. Round-tables for consultation and discussion on topics of interest, both to the commercial fruit grower and to the man who desires fruit only for the home garden, will also be held at stated times.

In addition to the above, a special feature will be introduced this year. The exhibit that was shown at the State Fair and the county fairs this year will be set up at the College during Farmers' Week. This embraces the following features: A complete set of budding and grafting tools, pruning saws, and picking bags; illustrations by photographs of every phase of orchard management from the time the tree is set in the nursery row until the fruit is marketed from the mature tree; lists of fruits for the home garden and commercial purposes, and other items of special interest to fruit-growers. A member of the department will be on hand to answer inquiries and make suggestions concerning the various problems connected with fruit production.

COUNTRY CHURCH CONFERENCE

The Fourth Annual New York State Country Church Conference will be held at the College of Agriculture on Tuesday, February 11, 1913, which is the second day of the Sixth Annual Farmers' Week. The program will be designed especially for country pastors, but will be of interest and value to other rural religious and social workers of any and all denominations. Country churches are encouraged to send their pastors, and now is the time to lay the plans. The speakers will be men of recognized authority on country church questions, who speak from intimate knowledge of and experience in rural conditions. The open discussions from the floor, which have added so much in previous years, will be given a larger place this year, for the occasion is designed to be a conference of workers and not a series of addresses. Letters of inquiry may be addressed to the Secretary of the College.

EXTENSION WORK IN VEGETABLE GROWING

(Department of Horticulture)

Readers of the Announcer: Have you solved all the problems of a successful home garden? Are all the questions clear that relate to the planning of a good home garden? Are you sure which variety of each vegetable you should select? Concerning the questions of soil, fertilizer, spraying, staking, etc.,—have you worked them out satisfactorily? Have the advantages of hotbeds and cold frames been made known to you? Are you perfectly familiar with the construction and management of hotbeds and cold frames? Are there not questions concerning vegetable growing, both for a *better home garden* and for *better commercial gardens*, that you would like to ask?

The Department of Horticulture of the New York State College of Agriculture has a division of extension in vegetable growing which desires to help you solve these problems. Letters on any matters dealing with vegetable growing are invited.

SCHOLARSHIP OFFERED BY THE NEW YORK STATE FEDERATION OF WOMEN'S CLUBS

The New York State Federation of Women's Clubs has offered to the Department of Home Economics for two years a $200 scholarship, the recipient of which is to be determined by the department according to scholarship and ability to make the work in home economics of value to a large number of persons. The scholarship last year was awarded to Miss Clara Browning, then a senior, who is now employed as an instructor in the department. The scholarship this year is to be given to Miss Clarabel Nye, a junior in the course in home economics.

TRAVELING SCHOOLS

From October 28 to November 1, inclusive, the College of Agriculture in cooperation with the New York Central and Hudson River Railroad operated over the Auburn and Batavia lines a traveling school of poultry husbandry. Two cars were used, one for demonstration purposes and the other for lectures. Stops of one half to one day were made at previously scheduled places. At each stop lectures were given on the more important phases of poultry husbandry and demonstrations were conducted on the methods of testing and grading eggs and killing, picking, and packing poultry. The demonstration car contained exhibits of poultry appliances, and photographic enlargements and charts showing methods of rearing chickens and caring for fowls, and results of experiments with poultry at the College.

During the week of November 11 the College, in cooperation with the same railroad, is to conduct a soils and dairy traveling school over the Harlem Division from New York to Albany. At this time the more important questions relating to milk production, soil management, and soil fertility will be taken up in lectures and demonstrations. In addition, the fruit interests will be taken up, especially in Columbia county. The full schedule of stops will be given in the local press.

EXTENSION SCHOOLS

The extension schools of one week each as conducted last year proved to be of such worth to the localities served that the demand for these brief schools of agriculture will this year far exceed the number that can be held. A few schools have already been definitely assigned and others are being considered. If any community desires a school, application for it should be made immediately to the Extension Department of the College of Agriculture. These applications will be considered in the order of their receipt and on the strength of the interest shown by the local community. The schools will be conducted by members of the college staff and the subjects to be taken up will be closely adapted to the local needs. Persons registering in a school are expected to attend regularly throughout the week. A registration of at least forty is required. The locality is expected to bear the expenses of furnishing suitable quarters for the school and to do the necessary advertising. In addition, a fee of $1.50 per person is charged to help defray the expenses of instructors.

CONTROL OF CLUB ROOT OF CABBAGE AND OTHER CRUCIFEROUS PLANTS

(M. F. Barrus)

The writer has observed the club root of cabbage in several sections of the State this year and takes this opportunity to make a statement regarding the control of the disease.

Club root disease is caused by an organism known as a slime mold, which enters the roots of plants from the soil and by its growth within the cells produces an irritation that results in an excessive growth of tissue. This growth is manifested in the enlarged and distorted roots that give the disease its name. The affected plants have a yellow color and are inclined to wilt during the day, but they revive at night. The spores of the slime mold are produced within the cells of the root and these are released in the soil when the root decays. It has been demonstrated that the organism is able to live for six years in the soil even though no cruciferous crop is grown; and it may live for an indefinite period when a cruciferous crop appears oftener than once in six years.

It has been found that an alkaline condition of the soil is unfavorable for the development of this organism and that on well-limed soil the disease does not occur. Therefore, liming is generally recommended where the disease is troublesome. One and a half to two tons of good stone lime per acre are necessary and should be applied eighteen months before planting the soil to cabbages, although some control is noticeable where plantings have been made six months after liming. Air-slaked lime or ground limestone may be used, but the fungicidal action is slower. An English investigator has obtained good results from the application of 1,500 pounds of unslaked lime per acre in the autumn and 500 pounds of sulfur per acre in the spring.

The plants for setting should be grown on well-limed beds or on soil known to be free from this organism. One should hesitate to set apparently healthy plants from beds containing some diseased ones, for at the time of setting it is impossible to tell whether or not such plants are diseased. There is a probability that they are affected although they may not show it. Where this organism is present in the soil it is well to practice a rotation of three or four years in addition to treating the soil.

As the spores of this organism are able to pass uninjured through the digestive tract of an animal, they are frequently introduced into uninfested soil through manure. Manure from unknown sources or from animals fed on affected plants should not be applied to cabbage fields. It is advisable to apply manure as a top dressing to the meadows preceding the cabbage crop, rather than to the soil the year the cabbages are grown.

When one considers that the spores of this organism are too minute to be seen with the naked eye and that they are produced by the millions in diseased roots of cabbage, cauliflower, turnips, and other cruciferous plants, he will understand the necessity of using great precaution to prevent their dissemination. The spores may be carried into infested fields in soil clinging to a cultivator or to the feet of horses and man, in soil washed from infested fields, in diseased roots, and in infested manure. These means of dissemination should be avoided, in addition to making the application of lime, if one is to obtain freedom from this disease.

COOPERATION WITH GROWERS OF VEGETABLES AND FLOWERS

The Department of Horticulture desires to obtain the addresses of all organizations in the State of New York that are in any way interested in vegetable and flower growing, whether for home use or for the market. The Department wishes particularly to reach women's clubs, church societies, school garden clubs, floral clubs, civic improvement societies, and like organizations that are interested in the growing of vegetables or flowers. The Department will place the names of persons obtained in this way on its mailing list for bulletins on vegetable and flower subjects. The first of these bulletins, to be ready on December 15, is entitled "Hotbed Construction aud Management." It is expected that on February 15, 1913, a second bulletin on "Planning a Home Vegetable Garden" will be available. Communications should be addressed to the Department of Horticulture.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 318—CONSTITUTIONAL VIGOR IN POULTRY

For the last five years the Department of Poultry Husbandry has been conducting experiments on the importance of constitutional vigor in poultry. Several hundred fowls, including both pullets and yearling hens of Single Comb White Leghorn and Barred Plymouth Rock stock, have been used in this work. Bulletin 318 outlines the method of selection, conditions of housing, and the management and feeding of the flocks. It shows the influence of constitutional vigor on the amount and cost of egg production, the cost of food consumption, the mortality, etc., of each of the twelve flocks in the experiments. The different flocks are compared separately and collectively, according to age and breed. Some interesting and unexpected results were obtained. The experiments show the necessity of careful and repeated selection of the constitutionally strong in order to weed out the weak and unprofitable boarders in the flock.

CIRCULAR NO. 13—PROPAGATION OF STARTER FOR BUTTER MAKING AND CHEESE MAKING

Requests frequently come to the College for information as to the propagation of starter for butter and cheese making. Circular No. 10, dealing with this subject, is out of print. This fact, together with the continued call for the circular, has made another edition necessary. In the revised edition (Circular No. 13) some changes have been made and new material has been added. Detailed steps are given for the propagation of starter, and the subject is briefly discussed in relation to the use of starter in a creamery, on a farm, and in a cheese factory.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Residents of New York State may be placed on the mailing list by indicating their desire to receive bulletins on one or more of the following subjects: Apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, N. Y.

Bulletins:

219. Diseases of ginseng.
262. Apple orchard survey of Niagara county.
265. On certai seed-infesting chalcis-flies.
266. The black rot of the grape and its control.
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it.
282. Seven methods of feeding young chickens.
283. The control of insect pests and plant diseases.
285. The cause of "apoplexy" in winter-fed lambs.
286. The snow-white linden moth.
289. Lime-sulfur as a summer spray.
291. The apple red bugs.
292. Cauliflower and brussels sprouts on Long Island.
293. The black rot disease of grapes.
295. An agricultural survey of Tompkins county.
297. Studies of variation in plants.
298. The packing of apples in boxes.
301. Sweet pea studies—I.
302. Notes from the agricultural survey in Tompkins county.
303. The cell content of milk.
305. The cause of "apoplexy" in winter-fed lambs.
307. An apple orchard survey of Ontario county.
309. The production of "hothouse" lambs.
310. Soy beans as a supplementary silage crop.
311. The fruit-tree leaf-roller.
312. Germination of seed as affected by sulfuric acid treatment.
313. The production of new and improved varieties of timothy.
314. Cooperative tests of corn varieties.
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12. The chemical analysis of soil.

(Department of Animal Husbandry circular.) The formation of cow testing associations.

The foregoing list is correct to November, 1912. The demand may at any time exhaust the supply of particular numbers. Requests will be filled as long as the supply lasts.

THE READING-COURSES

RULES FOR CLEANING

This lesson takes up some of the routine processes of the household in order to show how, by systematizing the daily work, time and strength may be saved by the housekeeper who either does the work herself or directs the work of others. The bulletin is not intended to furnish new methods of cleaning, but to suggest ways in which the familiar methods may be simplified. The well-known labor-saving rule, "A place for everything and everything in its place," becomes more effective if, by means of labels showing where each article is to be returned, the finding of the right place for everything becomes a mechanical instead of a mental process. A well-equipped cleaning closet with well-arranged utensils lessens the work of cleaning and the time spent in collecting and returning supplies. Proper tools and materials are as important in cleaning as in any other piece of work.

This point is brought out by the list of materials and utensils which should be included in the housekeepers' cleaning kit. Some of the processes given in the bulletin as illustrating the advantage of good equipment and systematic methods are: the care of the bathroom, cleaning of cupboards, daily dusting, dish washing, care of the fireplace, floors, furniture, woodwork, lamps, metal ware, refrigerator, sink, stoves, walls, windows, and window shades. Working by definite rules enables one to make a business like report on a day's cleaning. This should explain what was done, how it was done, what materials were used, what results were obtained, and the advantages and disadvantages of the method employed. Success means a knowledge of good methods, skill in applying them, and judgment in adapting them to existing conditions.

Residents of the State may obtain copies of the lesson by addressing Cornell Reading-Course for the Farm Home, College of Agriculture, Ithaca, N. Y.

CULTURE OF THE CURRANT AND THE GOOSEBERRY

This is the second lesson in the Fruit Growing Series of the Cornell Reading-Course for the Farm. The purpose of the lesson is to present to the fruit growers of New York State directions for the culture and marketing of these fruits. The publication is the result of a study, or survey, of the bush fruits in western New York, which was made during the summer of 1910.

The plan of the survey was to visit personally every grower and obtain as much information about his patch as possible, including information as to the age of the plants, methods of management, yields, and harvesting. The information gathered may be likened to an accurate history of each patch for four years.

Including all the small fruits, about one hundred and fifty different patches were visited. The information obtained was then tabulated, so as to give the present practice as to methods of cultivation, pruning, fertilization, and the like, and the comparative returns for these different methods.

Persons interested may register for the Fruit Growing Series, or they may obtain this lesson by addressing Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y.

ROTATION OF FARM CROPS

On many of the best farms the rotation of crops is such a common practice as to occasion no particular comment. The practice is very old and many good reasons can be advanced for it. The character of the rotation, or the lack of it, is frequently found to be responsible for successes or failures in farming. Planning a suitable rotation and making it work, are steps in the management of every paying farm Among other reasons for rotating crops, the Reading-Course lesson, "The Rotation of Farm Crops," enumerates the following: The question of supplying plant food, the use of plants with varying habits of root growth, the importance of maintaining the humus supply in the soil, keeping the soil in good physical condition, protecting it from washing and winter freezing, and successfully controlling weeds and insect pests. These reasons are briefly discussed and their strong points emphasized. Practical suggestions in regard to crop rotation are also added. The importance of profits in crop rotations and the right principles on which to apply manures and fertilizers are stated.

Many different rotations are practiced in New York. Because of the diversity of soil and climate in the State, this is necessary. Some of these rotations are well known and others are adapted to special conditions. Rotations requiring two to seven years are discussed in this lesson and their advantages and disadvantages are pointed out. Farmers in every part of the State will find something suggestive in these concrete illustrations.

Included with the lesson is a list of books and bulletins that will be helpful in studying the subject.

For this lesson address Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y.

RECENT NEW YORK STATE LAWS GIVING RELIEF FROM TAXATION ON LANDS USED FOR FORESTRY PURPOSES

This lesson is the second in the Farm Forestry series in the Reading-Course for the Farm, and will be issued November 15th. It gives the details of what must be done in order to obtain tax relief under the new laws which went into effect in April, 1912. These laws give complete exemption from taxation in some cases, and a reduction or limitation of the tax in other cases. In order to get this relief from taxation the land must be used for forestry purposes. It must be planted with forest trees if it is not already well wooded. If it is now covered with brush or with an unsatisfactory stand of timber, it must be under planted, that is, good trees must be planted under the existing growth. If it is already well wooded, it must be maintained as a satisfactory forest.

One of the great objections which many people have raised to giving care to their forest lands is that the taxes take much of the profits. By these new laws the State now guarantees reasonable taxation on forest lands that are managed as true forest properties. The State also furnishes trees from its state nurseries for planting, the trees being sold at the cost of production. It is to be hoped that the owners of lands which are not well adapted to cultivated farm crops will see their opportunity and will take advantage of this twofold help in making their forest lands more profitable.

Persons desiring this bulletin should address Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y.

AVAILABLE READING-COURSE LESSONS

For the Farm Home:

1. The care and feeding of children.—Part I.
3. The care and feeding of children.—Part II.
5. Household decoration.
7. Household furnishing.
9. Reading in the farm home.
11. The laundry.
13. Cornell study clubs.
15. Principles of jelly-making.
17. The preservation of food in the home.—Part I.
19. The preservation of food in the home.—Part II.
21. The preservation of food in the home.—Part III.
23. Rules for cleaning.
25. Saving strength.

Residents of New York State may obtain any of the lessons named above by addressing Cornell Reading-Course for the Farm Home, College of Agriculture, Ithaca, N. Y.

For the Farm:

Series		*Lessons*
The soil	Old course	37. Drainage and larger crops.
	New course	2. The soil: Its use and abuse.
Poultry	New course	4. Incubation.—Part I.
		6. Incubation.—Part II.
		10. Feeding young chickens
Rural engineering	New course	8. Knots, hitches, and splices.
Farm forestry	New course	12. The improvement of the woodlot.
		28. Recent New York State laws giving relief from taxation on lands used for forestry purposes (in press).
The horse	New course	14. Horse breeding to increase the farm income.
Dairying	Old course	23. The construction of sanitary stables.
	New course	16. Practical dairy problems.
Fruit growing	New course	18. The renewal of the neglected orchard.
		22. The culture of the currant and the gooseberry.
Farm crops	Old course	10. Pastures and meadows.
	New course	20. Alfalfa for New York.
		24. The rotation of farm crops.
Stock feeding	Old course	7. The computing of balanced rations.
	New course	26. Computing rations for farm animals.
Plant breeding	Old course	41. Improving plants by selection or breeding.
		42. Improving corn by seed selection.

Residents of New York State may register for one or more of the series named above by addressing Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, N. Y.

CORNELL STUDY CLUBS

The late fall of the year is the time to lay plans for spending the leisure during the winter months to the best advantage. Large numbers of inquiries are received concerning the farm publications of the College of Agriculture and it is evident that many persons desire to undertake reading that will help them in their farming operations. When such reading can be done in groups there is an added interest and an opportunity for self-expression, resulting often in mutual helpfulness among members of the group. The groups may include men, women, and young people, and may have social features as a part of the programs for the meetings.

Reading matter that is particularly adapted to such groups is found in the two Cornell Reading-Courses: the course for the farm and the course for the farm home. If the group is composed of both men and women, the lessons in the two courses may be alternated, or two separate groups may be formed holding part of the programs in common. Granges, churches, and other organizations have undertaken the formation of such groups or carried on such work in connection with their regular meetings. In communities where no organization is attempting to promote definite agricultural study, special study clubs are particularly helpful. Programs for Cornell study clubs and directions for organizing, together with a suggested constitution, are to be found in the Cornell Reading-Course Lesson for the Farm Home, April, 1912, "Cornell Study Clubs." This may be had on application. The supervisors of the Cornell Reading-Courses will cooperate with interested persons in any locality in the State in the formation of study clubs. Suggestions will be offered for preparing programs. Correspondence is invited.

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L. H. BAILEY, Director

VOL. 2 ITHACA, N. Y., DECEMBER, 1912 NO. 3

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FARMERS' WEEK EVENTS

DEPARTMENT OF SOIL TECHNOLOGY

During Farmers' Week, lectures will be arranged by the Department of Soil Technology on a number of important practical themes in soil management, including lime, the maintenance of organic matter, composition, storage and use of stable manures, practical effect of thorough tillage, and recent advances in the field of soil fertility. There will be laboratory demonstrations in connection with some of these topics. In addition, the subject of drainage will be thoroughly discussed at the meeting of the New York State Drainage Association, which will occur on the 10th and 11th of February. The program for this meeting is now being completed.

In connection with the Drainage Association, attention is called to the prizes offered for experience with farm drainage, the detailed conditions of which may be learned from a circular that may be had on application to E. O. Fippin, Secretary of the Association, at this College. This competition is in two classes: First, the large farm class, which offers a beautiful large silver cup for the best report of operations on an area exceeding 200 acres. The second group includes three medals presented for small farm operations, farms under 200 acres. Papers are to be submitted to the Secretary by January 15.

DEPARTMENT OF ENTOMOLOGY

The following lectures and demonstrations, of interest to farmers and fruit-growers will be given during Farmers' Week by the Department of Entomology:

Insect pests of forage crops.
Insect pests of plums, pears, peaches, and other fruits.
Insects causing knotty apples.
Common pests of the orchard.
Scale insects and the lime-sulfur wash.
Lectures and demonstrations in beekeeping.

During three days of the week, probably Wednesday, Thursday, and Friday, a successful beekeeper will give lectures and demonstrations, both in the forenoon and in the afternoon, on problems of the apiary, the rearing of queens, kinds of hives, fixtures, and the like, and the production and marketing of honey. At each session there will be a question box and opportunity for open discussion. If necessary, some of the lectures will be repeated so that all may have an opportunity to hear them.

A new feature this year will be a special educational exhibit of: (1) insects injurious to fruits, vegetables, staple crops, etc.; (2) animal parasites, and insects in relation to diseases of man and of animals; (3) common moths, butterflies, beetles, and the like, and collecting apparatus of interest in nature-study. Transparencies as well as mounted insects will be shown. This exhibit will occupy a large laboratory and will be attended by several members of the Department of Entomology.

DEPARTMENT OF FORESTRY

During Farmers' Week the Department of Forestry will offer a series of exhibits, demonstrations, and lectures which should prove helpful to persons who are interested in the care of woodlands or in forest planting. The new laws in New York State that went into effect in April, 1912, granting either exemption from taxation or a reduction of the taxes on lands used for forestry purposes, should stimulate an interest in this work. The program of this department will be planned primarily as a help to persons who wish to take advantage of these laws.

Exhibits.—A room will be set apart during Farmers' Week as a forestry exhibition room, with some one constantly in attendance. The exhibit will show, by means of specimens, photographs, and wall charts, the proper kinds of trees to plant, how to plant them, and various other matters connected with the establishment of forest plantations. The exhibit will also indicate some of the first things to be done in caring for woodlands, and some of the results to be obtained. Visitors are invited to make this room a meeting place and headquarters during the week.

Demonstrations.—Twice during the week, trips will be made to forest plantations within a mile of the college buildings, showing a forest plantation recently set and another which has been planted for several years. Problems connected with forest planting will be briefly discussed on the trips.

Lectures.—The following lectures will be given by members of the forestry staff:

1. The recent laws giving relief from taxation on lands used for forestry purposes.
2. Forest planting. (Illustrated with lantern slides.)
3. Caring for the woodlot in such a way that tax relief can be obtained. (Illustrated with lantern slides.)
4. Methods of determining the sale value of timber in the farm woodlot.
5 Choosing the kinds of trees to raise in the farm woodlot.
6. The forestry problem in New York State, and what it means to each of us. (Illustrated with lantern slides.)
7. The work of the United States Government in providing for a permanent timber supply. (A description of the work that is being done on the national forests. Illustrated with lantern slides.)

All of these lectures, except the last, will be given twice during the week.

THE COLLEGE FARMS

The New York State College of Agriculture has 766 acres of land and it rents 150 acres additional, making a total of 916 acres under College management. These farms are run not for commercial but for educational purposes and the practices are therefore modified to meet the varied demands of the institution.

Land in the vicinity of the College is very broken, abounding in hills and dales, brooks and gorges. In consequence, less than one half of the total area is now available for tillage. Of the 916 acres, 508 are classified as arable, 188 as pasture, 133 as wood and waste, 48 are devoted to college campus, buildings, and old orchards, and 39 are retained for other uses.

Of the tillable area, 45 acres have been laid out in permanent experiment plots for the use of the departments of Soil Technology and Plant-Breeding; 50 acres have been assigned to the Department of Pomology and are largely planted to young trees; 45 acres have been assigned to the Department of Horticulture; 73 acres to the Department of Poultry Husbandry; 24 acres to farm crops garden and experiments; and there are left to the Department of Farm Practice and Farm Crops 271 acres on which to conduct the regular farm operations. The numbered areas on the accompanying map are those under the management of this department. Fields numbers 1, 15, and 9, comprising about 30 acres, are in alfalfa and will probably be kept in this crop. The remaining 241 acres, divided into 23 fields, many of them of small size and irregular shape, are devoted to the raising of the regular farm crops grown in rotations.

The soil of the college farms is heavy, nearly all of it being Dunkirk clay loam. A few fields at the extreme southeastern corner are Volusia stony loam. The Dunkirk clay loam is entirely unsuited to potatoes and is not well adapted to corn, but will grow fair crops of corn if heavily manured. It is well adapted to wheat, oats, timothy, and clover. The Volusia stony loam is well adapted to corn and potatoes when well drained and freed from stones. The recently acquired areas lack both of these improvements.

In order that they may be readily accessible from the college buildings, our principal barns have been located at the extreme western end of the large farm domain. This entails a very long haul for a large part of the farm crops and of the manure, entailing a heavy labor cost.

In planning the cropping scheme, or rotations, for the farms, three considerations have been kept in view—the soil adaptation, the long haul, and the forage requirements of the live-stock. Fortunately, these considerations harmonize in the main. The heavy soil and the long haul make the growing of the desired amount of corn for silage a difficult task. It is on this point that the rotations hinge. The needed silage cannot be purchased elsewhere. A surplus of silage or corn fodder could not be disposed of. Sufficient silage corn is grown, and, so far as possible, within easy hauling distance of the barns. Besides the corn, the farms raise oats, wheat, clover, timothy, and potatoes, because they are adapted to the soil and are needed at the barns or are of ready sale.

In planning the rotations, 23 fields are divided into five groups. The first group, comprised of fields numbers 6, 7, 8, 11 and 12, is located convenient to the silos, and therefore should be made to produce as much corn as practicable. This land is in corn two years out of five. The rotation is: first corn, second corn, third oats, fourth wheat, fifth clover. The purpose is to grow the first crop of corn on the clover sod without manure; to sow in the corn at the last cultivation a catch-crop of rye, manure to be applied, and both it and the rye plowed down for the second crop of corn. Timothy seed is applied in the fall with the wheat, and clover in the spring. The corn stubble is plowed in the fall, so as to be ready for the early sowing of oats. The oat stubble is broken immediately after harvest, to give as long a time as possible for fitting the land for wheat.

The second group is composed of four fields, numbers 3, 4, 16, and 17. Two are near the barns and two are rather remote. On these fields the rotation is corn, oats, wheat, and clover. This land bears corn once in four years.

The third group comprises fields numbers 10, 20, 22, 23, and a combination of 21 and 24. These fields are so remote from the main barns as to make the hauling of silage from them expensive. No more corn is grown on them than necessary. It is found that a crop of corn on this land once in five years will probably meet the requirements. The rotation adopted, therefore, is: first corn, second oats, third wheat, fourth clover, fifth timothy.

The fourth group comprises fields numbers 51, 52, 53, 55, and 56, on the Southeast farm. This farm is so far from the State barns that the hauling of silage is prohibitive This land, therefore, is devoted as fully as possible to the production of hay; nearly all of it is in hay now. It is planned to break this land after haying, fit and sow to winter grain or oats, seed back to timothy and clover, and mow for four years. Manure may be applied as a top-dressing to the grass or when the land is broken. Nitrate of soda may be used to increase the yield of timothy. This rotation is still in the "trying-out" stage. If it is found that a field of corn is desired for the grain and dry fodder, corn can be grown when the land is broken

The fifth group comprises fields numbers 57, 58, and 59. These fields are practically the only ones on the college domain that are at all well adapted to potato-growing, and these are not in satisfactory condition for this use because they are very stony and water seeps from the hill to the south and keeps them wet for a long time after wet weather. Drainage and clearing will correct this.

A short rotation, first potatoes, second oats, and third clover, has been adopted for this group. It is the practice to plow the sod in the fall for rye, apply manure during the winter, and plow down for potatoes in the spring. This gives a well-rotted sod and additional organic matter.

It is desired to call attention to the fact that while such a cropping scheme may seem rather ironclad and not suited to variable needs, it really is very adaptable. If it is found that the rotations give more corn than is desired, the sod field in the first group that is due to be broken for corn may be mown a second time, thus giving two crops of hay instead of two crops of corn. Or, if it is found that the area of corn must be increased, part of the land in the third group may be broken after mowing once instead of after mowing twice, and be made to grow two crops of corn in five years instead of one. If very short of hay and no corn area can be spared, wheat may be dropped out of the rotation and the seeding done in the oats, and thus gain an extra year of hay on the land.

If, owing to a very wet autumn, it is impossible to do the usual wheat seeding, as sometimes happens, the area intended for wheat may be sown to oats in the spring and the meadow seeds added at this time.

If a piece of roots or cabbage is desired, it may be given a small area on the land that is to grow corn for the second time. None of these variations disarrange the general cropping scheme in the least.

While a large number of crops are not grown in the farm rotations, field number 5 has been set aside as a farm-crops garden and demonstration area. Here every crop that can be grown in this region will be planted and demonstrations of cultural methods will be made.

Field number 54 is being considered for the investigational work in farm crops and may be plotted for various experiments.

Owing to variations in the size of fields, the annual planting of the various crops will vary somewhat, but the following is about what the average areas will be:

Potatoes	7 acres	Roots	3 acres
Corn	44 "	Clover	55 "
Oats	50 "	Timothy	48 "
Wheat	34 "	Alfalfa	30 "

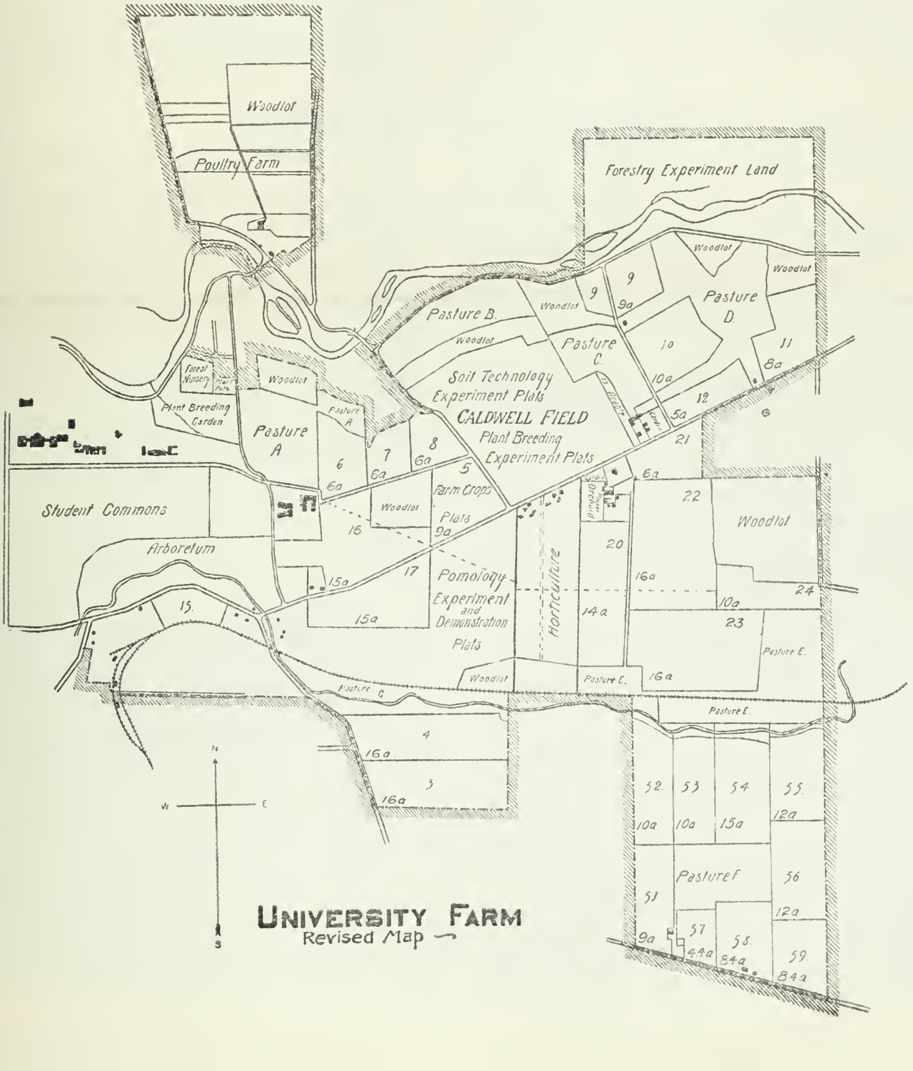
The cropping scheme described above is not yet fully in operation. The following are the areas planted and the production for 1912:

	Acres	Products (as far as harvest is completed)
Corn	58	387 tons silage
Oats and peas	7	36 " "
Oats	34	1943 bushels
Wheat	4	100 "
Clover	46	318 tons
Timothy	60	
Alfalfa	29	102 "
Rye	4	
Meadow seeding	21	(no nurse crop)
Roots	2	55 tons
Cabbage	½	
Soy beans	½	
Farm crops garden	1	
Potatoes	4	1000 bushels

CROPPING SCHEME

The following chart shows in tabular form the rotation practiced on the several groups of fields and what crop is to be planted on each field each year. As this scheme takes the place of another that was interrupted by assigning certain fields to other uses and acquiring new fields. a few of the fields cannot be cropped as indicated for a year or two.

	Field	Acres	1913	1914	1915	1916	1917
Group 1. A five-course rotation allowing two crops of corn from each field in five years.	No. 8	6	Corn^1	Corn^2	Oats	Wheat	Clover
	No. 6	6	Corn^2	Oats	Wheat	Clover	Corn^1
	No. 7	6	Oats	Wheat	Clover	Corn^1	Corn^2
	No. 11	8	Wheat	Clover	Corn^1	Corn^2	Oats
	No. 12	5	Clover	Corn^1	Corn^2	Oats	Wheat
Group 2. A standard four-year rotation.	No. 3	16	Corn	Oats	Wheat	Clover	Corn
	No. 4	16	Oats	Wheat	Clover	Corn	Oats
	No. 17	15	Wheat	Clover	Corn	Oats	Wheat
	No. 16	15	Clover	Corn	Oats	Wheat	Clover
Group 3. A five-year rotation with two crops of hay.	No. 20	14	Corn	Oats	Wheat	Clover	Timothy
	No. 23	16	Oats	Wheat	Clover	Timothy	Corn
	No. 22	16	Wheat	Clover	Timothy	Corn	Oats
	No. 10	10	Clover	Timothy	Corn	Oats	Wheat
	No. 21 } No. 24 }	16	Timothy	Corn	Oats	Wheat	Clover
Group 4. A five-year rotation for hay. If corn for husking is desired it can have place here.	No. 51	9	Oats	Clover	Hay	Hay	Hay
	No. 53	10	Hay	Oats	Clover	Hay	Hay
	No. 52	10	Hay	Hay	Oats	Clover	Hay
	No. 56	12	Hay	Hay	Hay	Oats	Clover
	No. 55	12	Clover	Hay	Hay	Hay	Oats
Group 5. A three-year potato rotation.	No. 57	4.4	Potatoes	Oats	Clover	Potatoes	Oats
	No. 59	8.4	Oats	Clover	Potatoes	Oats	Clover
	No. 58	8.4	Clover	Potatoes	Oats	Clover	Potatoe



UNIVERSITY FARM
Revised Map

GENERAL ANNOUNCEMENTS

DEPARTMENT OF PLANT-BREEDING

The Department of Plant-Breeding, in cooperation with the New York State Plant-Breeders' Association, is planning for Farmers' Week a special program on the general subject of plant-breeding and crop improvement. This program will consist of lectures and demonstrations on the improvement of the most important crops of the State.

The department is also planning for a large exhibit showing the results that have been obtained in breeding some of the leading crops in the State. For example, bales of hay will be exhibited, showing the comparison between the yield of ordinary timothy and of some of the strains that have been isolated by the department. Exhibits will be made of the different types of timothy that are being bred at this Station. Seed of some of the highest yielding sorts will be available for distribution in the fall of 1913, and for this reason this exhibit will be of considerable general interest.

Samples will be shown of some of the new sorts of wheat and oats that are being bred at this Station, the seed of which will soon be ready for distribution.

Samples of two strains of dent corn that have been selected for the last five years for yield and earliness in New York will also be exhibited. Seed of these strains is now available for the spring planting.

An exhibit will also be made of the methods that may be used in the improvement of the potato and some of the results that have been obtained.

In addition to these displays of leading crops, smaller exhibits will be made to show the importance and possibilities of plant-breeding. The department expects to ask persons in the state who are breeding crops to send in specimens of their work together with statements in regard to their methods. As it is impossible for the department to come in direct touch with all of the persons who are breeding field, horticultural, or vegetable crops, it is intended that this notice shall serve as an invitation to each one who is interested to send in material that he may have on hand.

It is hoped that these exhibits, together with a program of lectures and demonstrations, will be of use to many farmers who are interested in the improvement of their crops. Members of the plant-breeding staff will be on hand at all times to explain the exhibits, answer questions, and arrange for cooperative experiments.

HOME MAKERS' CONFERENCE

The Department of Home Economics of the New York State College of Agriculture will hold their regular Homemakers' Conference during Farmers' Week. Lectures, demonstrations, and exhibitions will constitute the program of the week. It is expected that the new building for home economics will afford unusual opportunity this year to women visiting the college during Farmers' Week to obtain special assistance in their own lines of work. The lectures will be held in the small assembly room on the second floor, and the conferences and exhibitions in other rooms near by. The lectures will be on subjects pertaining to the preparation of food, human nutrition, household decoration and furnishing, and household management. There will be an exhibition of class work in sewing. It is hoped that the new cafeteria will be in operation.

CROP ACCOUNTING FOR VEGETABLE GREENHOUSES

The Cornell system of vegetable crop accounts has been in successful use for two seasons. It consists of a simple but substantial cover carrying two pads, one ruled for cost items, the other for income items. The book is furnished free of cost to growers who agree to make the proper records and to send duplicate sheets each month to the office of the Department of Horticulture. All records are confidential. The system is easily handled, involving no complex bookkeeping.

It is desired to extend these records to include vegetable-growing in greenhouses, and persons who might be interested are urged to write to the Department of Horticulture for particulars. Few growers know what their crops are costing and the general information on the subject is very meager. May we not have your help in establishing the facts?

VEGETABLE-GROWING

The census of 1910 will doubtless show that in the state of New York there are more than 18,000 persons engaged in the growing of vegetables as a business. It will not show, however, how many hundreds of thousands of persons or families in the State have home gardens. It is the purpose of the Department of Horticulture to become acquainted with as many as possible of both the commercial growers and the home gardeners. There are several ways in which this may be accomplished, and one method is here presented. It is sincerely hoped that a large number of the readers of the Announcer will cut out and return the following card properly filled out. The Department is revising its mailing list of vegetable-growers, and desires the information in part for this purpose and in part that it may be in close touch with all who are growing vegetables who have problems to solve.

Home or commercial garden?..............................
If home, please give size of garden, etc..........................
In 1912 I have raised the following number of acres of:—
Asparagus..acres
Beans, snap..acres
Beets..acres
Cabbage..acres
Carrots..acres
Cauliflower..acres
Celery...acres
Cucumbers..acres
Lettuce..acres
Melons...acres
Onions...acres
Peas...acres
Potatoes...acres
Rhubarb..acres
Spinach..acres
Squash...acres
Sweet corn...acres
Tomatoes...acres
Turnips..acres
Other Vegetable Crops.....................................
Give problems in which you desire help.
....
....

Name..

Address.........................*County*...................

Some two thousand of these cards have been mailed to persons in the State, and a large number have been returned properly filled out. The department desires the return of the remainder. Those who return the cards properly made out with name and address will be placed on our mailing list, and will receive the first of a new series of bulletins that will be of special interest to persons engaged in vegetable- and flower-growing, either home or commercial. With the return of the cards, the department will welcome letters on problems that the season has brought to the growers. Personal answers will be given to the letters. Address Department of Horticulture, College of Agriculture, Ithaca, New York.

BULLETIN 320.—CULTURE OF THE SWEET PEA

Considering its fragrance, range of color, freedom of bloom, suitability for cutting, and popularity, no annual flower surpasses the sweet pea. Since the autumn of 1909, the Department of Horticulture has been conducting investigations with sweet peas in cooperation with the American Sweet Pea Society. Bulletin 320, which is the third report, is in two parts. Part I treats of the botany of the sweet pea, and Part II deals with the history, evolution, and culture. There is a full discussion of soils, methods of planting, supports, cultivation, insects and diseases, the preparing of the flowers for exhibition, and their arrangement on the exhibition table.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

FARMERS' WEEK EVENTS

DEPARTMENT OF ANIMAL HUSBANDRY

The demonstrations on the program for Farmers' Week will be largely in the hands of students in the College who are doing special work in animal husbandry. On Tuesday afternoon the students will give an exhibition of cattle, sheep, and swine, selected, fitted, and prepared for exhibition by themselves from the college flocks. To the winners in this exhibition special prizes will be given. On Wednesday afternoon will be held the farmers' cow-judging contest, which has been an interesting feature of Farmers' Week for the past several years. For this contest ten cows, whose records for at least one year are known, have been selected from the college herd, and all farmers desiring to do so have been asked to arrange these ten cows in the order of highest production, basing their judgment on external indications only. Each year fifty to one hundred farmers have participated, and the opportunity thus given for close observation of cows has proved a highly educational feature. This year special souvenir watch-fobs will be awarded to those whose judgment tallies most closely with actual production. On Wednesday afternoon there will also be a pork demonstration, consisting of carcasses from at least four breeds of swine cut up to show the percentage of ham, loin, and other cuts. On Thursday afternoon will be held a parade and demonstration of the work teams of the farm, giving an opportunity to study useful types of draft horses and mules. These teams will be in charge of the regular teamsters, and each teamster will be encouraged, by the awarding of special prizes, to show his team in the best possible form.

On Friday morning of Farmers' Week the student class in practical horse-training will give an exhibition of its work, in the form of a competition among the various members as to which one can show the best-trained and best-broken team. Special prizes will be awarded in this contest. On Friday afternoon will be held the third annual sale of surplus animals. This method of disposing of the surplus livestock of the farm has proved to be a very satisfactory one; not only so far as the College is concerned, in the way of prices obtained, but in giving the farmers of the State, who are supporting the College, an opportunity to invest in well-bred animals. The offering this year, as before, will consist largely of young surplus bulls of the different breeds, Jersey, Guernsey, Holstein, and Ayrshire. A few cows will be included also. There will be some well-bred Cheshire swine, sows in pig, and younger sows; and the sixteen three-years-old work teams, trained by the class in practical horse-training, will also be offered.

In addition to the demonstrations, lectures will be given by the members of the staff and round-table discussions will be held on subjects pertaining to animal husbandry and live-stock management, at times and places that will be announced in the regular program.

Exhibitions.—The following exhibitions and demonstrations will be given during Farmers' Week by the Department of Animal Husbandry:

During the entire week the university herds will be on exhibition in the new barn. A conveyance, in charge of student guides, will leave the Animal Husbandry Building for the farm barns at 1 p. m., 2 p. m., 3 p. m., and 4 p. m. Twenty persons can be accommodated on each trip.

A students' live-stock show and competition will be held at the farm barns at 2 p. m. on Tuesday, February 11. Souvenir prizes will be awarded to those students whose stock is in the best show condition.

On Wednesday, February 12, at 2 p. m., there will be a cow-judging contest, to be participated in by all who desire to do so except persons who have been students in some college of agriculture or some secondary school of agriculture. Souvenir prizes will be awarded to those showing the most proficiency.

A demonstration and lecture on types of horses for the New York farmer will be given in connection with the horse parade and demonstration to be held on Thursday, February 13, at 2 p. m.

A demonstration and competition in training horses will be given at 9 a. m. on Thursday at the farm barns. Eight students have each been training a farm team for the last semester. The results of their work will be demonstrated at this time. The teams will be sold at auction on Friday afternoon, together with the surplus stock of the department.

ROUND-UP CLUB LIVE-STOCK SHOW

During Farmers' Week the Round-Up Club in the Department of Animal Husbandry proposes to hold a live-stock show, with representatives of the college herds and flocks exclusively. Competitive classes of horses, of five breeds of dairy animals, and of five breeds of sheep will be scheduled. Students will enter and exhibit their selected animals in the various classes. Prizes will be awarded to those in each class who show superior ability in the exhibiting of animals. It is hoped that the exhibition will prove of interest to farmers.

A second feature that should be an object-lesson to the farmer who has to deal with dairy animals will be a cow-demonstration test, conducted according to the rules that govern the making of advanced-registry records. Representatives of the Ayrshire, Jersey, Guernsey, Shorthorn, and Holstein breeds will be included. The purpose of the test is not to illustrate comparative merits of the different dairy breeds represented, but rather to emphasize the importance to the farmer of knowing the productive capacity of his cows, and to point out a variation in the food cost of producing milk or butter-fat with different individuals. Accurate records of the hay, grain, silage, and roots given each animal, and of the milk and butter-fat that she produces, will be posted on a placard above the animal each day.

Increase in production resulting from the use of pure-bred sires on the progeny of a grade cow will also be illustrated by cows in the herd.

DEPARTMENT OF POULTRY HUSBANDRY

The activities of the Department of Poultry Husbandry during Farmers' Week will consist of a poultry institute each day, a blue-ribbon poultry show, an egg show, and a dressed-poultry show; and five judging contests—live poultry for exhibition, dressed poultry, eggs for market, constitutional vigor, and killing and picking poultry. An educational exhibit will be staged, showing the latest results of experiments with poultry. At regular periods each day, Cornell methods of feeding for egg production and for fattening, of rearing chickens, of poultry-house construction, of selection and breeding for egg production, of selecting, testing, and packing eggs, and of preparing poultry for market, will be discussed.

This year, for the first time, opportunity will be offered on Tuesday, Wednesday, Thursday, and Friday for visitors to receive instruction and to have practice for two hours in (1) judging, candling, and packing eggs for market and for hatching; (2) killing, picking, and packing poultry; (3) judging poultry for exhibition and for market; (4) studying the anatomy and physiology of fowls; (5) studying the structure and formation of the egg. For this a small fee to cover the actual cost of materials used, not to exceed twenty-five cents for each practice period, will be charged. In view of the fact that only a limited number of persons can be accommodated in each of these practice periods, applications should be made in advance as early as possible, in order that space may be reserved and materials provided.

On Tuesday evening the former Winter-Course students in poultry husbandry will hold a reunion and banquet. On Wednesday evening will occur the dedication of the new Poultry Husbandry Building. On Thursday afternoon a conference is called of delegates from the various poultry associations, clubs, and societies of the State. On Thursday evening will be held the regular meeting of the Cornell Poultry Association, with an appropriate program.

Poultry Show.—The poultry show will consist of pairs of the different kinds of domestic poultry that have won first prizes in any poultry show in the State. Only a limited number of entries can be received of each of the principal varieties.

Egg show.—One dozen specimens from each of the principal varieties of poultry will be received.

Dressed-poultry show.—A pair of chickens or mature fowls is desired of each of the principal varieties of poultry.

No entry fee will be charged for either the live-poultry, dressed-poultry, or egg show. For detailed program, entry blanks, and other information, address the Department of Poultry Husbandry.

DEPARTMENT OF FARM MECHANICS

The Department of Farm Mechanics is planning to make a special exhibit, in the Farm Mechanics Building, of systems for farm water-supply and for the disposal of house drainage by use of septic tanks. Two different types of air-pressure water systems will be in operation at all times, and competent persons will be on hand to explain their use and to answer general questions on water-supply problems.

For the past two years the department has been perfecting the details of a simple, cheap, and effective design of septic tank which farmers can readily build of concrete, and the exhibit will clearly explain the construction of this tank. As is now generally known, the discharge from septic tanks is not a pure liquid and it may contain disease germs. By distributing it evenly through a system of underground tile this liquid may be purified. In clay soil it is necessary to use a considerable length of tile, and the problem arises as to how to distribute the liquid evenly throughout the tile. In order to meet this problem the Department of Farm Mechanics has invented the Cornell sewage divider and sewage switch, which will be exhibited in operation with clear water.

Rural-engineering conferences, at which personal questions will be discussed, will be held every afternoon from 3 to 4:30 in the Farm Mechanics Building. The conference on farm mechanics will be in charge of Professor H. W. Riley and that on rural engineering in charge of B. B. Robb.

New York State Rural Engineering Society.—This society, which was organized last year to promote agricultural engineering work in the State, will meet on Thursday morning of Farmers' Week for the following program:

9 a. m. Gas engines for fuel oils. C. F. Hirshfeld.
10 a. m. Business meeting.
11 a. m. Principles of barn-framing. George Young, jr.
12 m. Septic tanks for house drainage. H. W. Riley.

At the business session the most important work will be the adoption of a permanent constitution, to replace the temporary one adopted last year.

The society has as its field all the engineering problems confronting the farmer, and persons interested are invited to attend the meeting and join in the development of the society's activities.

DEPARTMENT OF PLANT PATHOLOGY

The Department of Plant Pathology will present the following program during Farmers' Week:

Practicums: Apple scab; tree cankers, and methods of treating them; potato blight and rot.

Lectures: Lessons to be learned from the potato-rot epidemic of the past year; factors influencing the control of apple scab; control of bean anthracnose.

Round tables: In connection with the meeting of the New York Federation of Floral Clubs—subject for discussion, "Diseases of Florists' Crops," conducted by Dr. Donald Reddick; in connection with the meeting of the New York State Vegetable Growers' Association—subject for discussion, "Diseases of Truck Crops," conducted by Dr. Donald Reddick.

The lessons and lectures on apple scab are most timely. This disease appears more or less every year, and some years it causes considerable loss. Every apple-grower should become acquainted with the disease and learn the most approved methods of controlling it.

Potato rot has been exceedingly abundant and destructive the past year, the loss amounting to more than five million dollars in this State. Potato-growers attending the lessons on this subject will have an opportunity to study the disease in all its phases and to obtain much valuable information regarding its control. Farmers who have in mind the renovation of old orchards need to know the various cankers that are so numerous in some orchards and to learn how to cut them out. An opportunity will be given in one of the practicums to examine various cankers, and methods of treatment will be demonstrated. At the round tables ample opportunity will be given for questions and discussions relating to the diseases under consideration. In the practicums diseased materials will be examined with a microscope, so as to enable those in attendance to observe the organism causing the disease. As far as practicable, diseases related to those being studied will be exhibited. The methods of control of the diseases under discussion will be emphasized.

DEPARTMENT OF HOME ECONOMICS

The Home-makers' Conference is held by the Department of Home Economics at the New York State College of Agriculture in connection with Farmers' Week. Only the regular work of the department will be conducted on Monday. Beginning with Tuesday and continuing until Saturday noon, there will be given each day lectures on various subjects connected with home-making, including the following partial list: The child; bread-making; milk in the diet; fireless cooking; the housekeeper and the cost of living; household conveniences; the farmhouse; furnishing the house; economy and the preparation of leftovers; homemade sweets, with demonstration; garden flowers—what they are doing; introductory talk on foods; appreciation of books; better home-gardens.

The lectures named above will be given by members of the college staff. In addition, a lecture will be given by Mrs. Rose Morgan, on "Music and its appreciation"; and others will be given by Miss Caroline Webster and Miss Mary P. Parsons, of the State Education Department, on "The home library." It is expected that the lectures in this conference will be held in the new Home Economics Building.

DEPARTMENT OF FARM MANAGEMENT

The Department of Farm Management will offer lectures during Farmers' Week on the following subjects: Farm layout; some successful New York farms; the effect on profits of efficiency in the use of labor; results of cost accounts; methods of cost accounting; types of farming for New York; types of farming on dairy farms; some advice to city persons who expect to farm. Other topics may be treated in additional lectures, to be arranged later.

DEPARTMENT OF PLANT PHYSIOLOGY

Lectures on the following subjects will be given during Farmers' Week by members of the staff of the Department of Plant Physiology: Inoculation for legumes; pure-culture preparations for legume inoculation; mushroom-growing for the home. In addition, an exhibit of cultures of root-nodule bacteria of legume crops and the results of inoculation will be held throughout the week in the plant physiology laboratory, Agronomy Building, Room 21. Demonstrations will be given on Wednesday afternoon. An exhibit of mushroom beds will be held in the plant physiology headhouse of the new greenhouse.

STUDENTS' ASSOCIATION

The fourth annual meeting of the Students' Association of the New York State College of Agriculture will be held at the College on Thursday of Farmers' Week, February 13, at 10 a. m., with the following program: 10 a. m., Director's annual address to former students—"The correlation of different lines of agricultural work." 11 a. m., President's address, followed by business meeting. 12 m., Luncheon at Home Economics Building. Questions of much importance to former students are to be considered at the business meeting.

CORNELL DAIRY STUDENTS' ASSOCIATION

The annual meeting of the Cornell Dairy Students' Association will be held in Farmers' Week, on Wednesday, February 12. The officers of the association have arranged an unusually good program. In order to have the meeting successful it is necessary that there be a large attendance of the members. The program will be as follows:

10 a. m. Roll call, and reading of minutes of the last meeting. President's annual address. W. L. Markham, Kennedy, New York.

11 a. m. Address: Care and handling of cream with the purpose of improving the quality of butter. W. E. Ayres, Berne, New York.

12 m. Address: Certified-milk production. Stephen Francisco, Montclair, New Jersey.

2 p. m. Address: Improvement of a city's milk supply. Dr. H. A. Harding, Geneva, New York.

3 p. m. Address: The dairy boys and their relation to the Cornell Dairy Students' Association. A. G. Steer, Philadelphia, Pennsylvania.

4 p. m. Address: The relation of the Cornell Dairy Students' Association to the Department of Dairy Industry. Professor W. A. Stocking.

5 p. m. Business meeting and annual election of officers.

8 p. m. Address: New York State dairy laws, and their relation to the dairymen. Honorable Calvin J. Huson, Albany, New York.

COUNTRY CHURCH CONFERENCE

The fourth annual New York State Country Church Conference will be held on Tuesday of Farmers' Week, February 11, with the following program: General subject, The country church and the country community. 9 a. m., The educational value of the country church, Dr. A. S. Hoyt, Professor of Sociology, Auburn Theological Seminary; 10 a. m., The country church in relation to social and recreational conditions, John R. Boardman, Good Will Home Association; 11 a. m., The country church in relation to community voluntary organizations, E. L. Earp, Professor of Sociology, Drew Theological Seminary; 12 m., Adjournment for lunch; 2 p. m., The country church in its relation with religious conditions and forces, Dr. C. W. Shelton, Secretary of the New York Home Missionary Society; 3 p. m., The regeneration of a rural community through the church, Rev. S. E. Persons, Cazenovia; 4 p. m., Religious centers and community workers in their relation to an efficient rural democracy, Rev. C. S. Tator, Northport, N. Y.; 5 p. m., Adjournment for supper; 7:30 p. m., The relation of the church to country-life progress, John R. Boardman; 8:30 p. m., Community cooperation for community progress, Professor E. L. Morgan, Community Field Agent, Massachusetts Agricultural College. Dean J. W. A. Stewart of Rochester Theological Seminary will preside at the sessions. The morning and afternoon papers will be thirty minutes in length and will be followed by thirty-minute discussion periods.

The country church conference is intended primarily for country pastors and other rural religious and social workers of any denomination. The sessions are open to all interested persons. Rural churches especially are encouraged to send their pastors, or to instruct members of their congregations who may attend Farmers' Week to represent them at the conference and carry back reports.

DEPARTMENT OF RURAL SCHOOL EDUCATION

The rural schoolhouse, near the College of Agriculture, will be used as headquarters for district superintendents and rural teachers during Farmers' Week. The program for each day will be arranged according to the needs and desires of the district superintendents, who will conduct the meetings. The College will help by furnishing persons who can contribute to the discussions.

The meetings will convene at 10 a. m. and at 2:30 p. m. daily, from Tuesday morning until Friday night with the exception of Tuesday afternoon, when there will be no regular session in order that those interested may attend the lectures offered by the Department of Home Economics.

In case some of the district superintendents cannot remain the entire week, Wednesday will be the special day when as many as possible should try to be present. A. D. Dean and L. S. Hawkins, of the State Educational Department, will help to make the day profitable.

Some subjects that have been suggested for discussion during the week are as follows: The health of the boys and girls; the schoolhouse and grounds; the work of the New York State Syllabus; the equipment of the rural school; the school library; play in rural districts; agricultural contests. Additional suggestions will be welcomed.

There will be nothing formal about any of the meetings. They are designed especially for district superintendents and rural teachers, and will be restricted to such persons. It is hoped that the district superintendents will take the initiative, and the College is ready to cooperate in every way. No set program has been arranged because it is felt that those in attendance should decide what they want, and that extemporaneous talks and discussions are of much greater value than formal addresses in gatherings of this kind. Aside from the regular meetings, the members of the Department of Rural School Education will be glad to meet personally and talk with all district superintendents and teachers.

For further information, address the Department of Rural School Education, College of Agriculture, Ithaca, New York.

NEW YORK STATE VEGETABLE GROWERS' ASSOCIATION

The New York State Vegetable Growers' Association is laying plans for its third annual meeting, to be held at Ithaca, February 11-13, during Farmers' Week at the New York State College of Agriculture. This society has been making steady progress during the past year, not only in growth in membership but also in expansion of its work. The object of the organization is primarily educational, and this aim is carried out in its own meetings and in its encouragement of local growers' associations. The society has been instrumental in arranging for successful practical growers to address such local organizations on those topics that are of most pressing interest to them. The state association also keeps its members in touch with the best literature on vegetable subjects as it appears, and helps them to procure such publications as they desire. During the past year two educational exhibits on marketing methods have been made.

In addition to its educational work, the association has given attention to the practical solution of the good-seed problem. It ascertains sources of reliable seed and enables its members to procure supplies at reasonable prices. Consideration is given also to legislative questions, to the securing of better crop reports, and to the encouragement of investigations along vegetable lines.

The program for the third annual meeting, which has been arranged in cooperation with the Department of Horticulture at the State College of Agriculture, will include papers on such subjects as: Ways of telling which crops pay; greenhouse construction; why the market gardener should use a greenhouse; muck-land vegetables; and local associations and their possibilities. Cabbage, tomatoes, and other crops are to be treated in special lectures, and a period will be left open in order that members may hear Professor Stone's discussion of potato culture.

All the papers presented will be short, and ample time will be allowed for the round-table discussions which have always been found so helpful.

Special round-table periods are to be devoted to the subject of irrigation, under the leadership of men who have been successful in watering their crops; and to diseases of vegetables, with the Department of Plant Pathology in charge.

As was the case last year, the committees are doing real work and their reports will be of special interest. One committee report will deal with the relation of the new parcels post to the vegetable-producer.

An afternoon will be given over to the business session of the association, and ways in which it can be made increasingly useful to growers will be taken up. The members of the organization are to unite with the State Federation of Floral Clubs and with the fruit-growers who are in attendance, for a banquet to be given on the evening of February 12.

For further information regarding the work of the association and for the complete program, address the Secretary, Paul Work, Ithaca, New York.

THE CORNELL POTATO SHOW

During Farmers' Week the Department of Farm Practice and Farm Crops will hold a potato show. There will be six classes of exhibits, and competition for premiums in these classes will be open to all potato-growers in New York State except those who make a profession of exhibiting potatoes at fairs. In each class five prize ribbons will be awarded, and in addition fifteen pieces of agricultural machinery and implements adapted to potato-growing will be given away as special prizes. All exhibits for premiums will be on plates. Transportation charges on exhibits will be paid by the College of Agriculture. All exhibits in competition for premiums are required to be in place on Monday, February 10. Exhibits not intended for competition in any of the classes in which premiums are awarded may be brought to the show at any time during the week. Every effort will be made to get together an instructive exhibit of the best potatoes grown in the State.

On Thursday, February 13, a special program of lectures and discussions on the subject of potato culture will be held and the day will will be known as "Potato Day." In the forenoon members of the staff of the College of Agriculture will give lectures on various phases of potato culture. In the afternoon practical growers of potatoes will take part in the program and the question of organizing the potato-growers of the State will be discussed and acted on. The full program for Potato Day will appear later. The printed premium list and rules for the potato show are now ready and may be had on request to the Department of Farm Practice and Farm Crops. It is hoped that, in spite of disastrous conditions during the past autumn, potato-growers will respond to this opportunity with interest.

The department will be glad to receive communications from those who propose to exhibit their potatoes at the show, and to hear by letter what questions it is most desirable to discuss for the benefit of potato-growers on Potato Day. Communications in regard to either of these matters may be sent to the Department of Farm Practice and Farm Crops, College of Agriculture, Ithaca, New York.

DEPARTMENT OF DAIRY INDUSTRY

One of the special features offered by the Department of Dairy Industry during Farmers' Week will be the scoring contests for butter, cheese, and milk, which will be held on Tuesday, Wednesday, and Friday, respectively, from 9 a. m. to 12 m. These contests are open to any dairyman in New York State engaged in the above-named lines of dairy work. The object is to familiarize dairymen with what constitutes good dairy products and with the methods of judging these products. It is to be hoped that a large number of dairymen will take part in the contests, as they will be of value to all who are engaged in manufacturing dairy products or in handling milk. No one engaged in dairy work will be able to make a success of the business unless he is entirely familiar with what constitutes good dairy products. These scoring contests are educational, and will not only help dairymen to this knowledge, but will also lay special stress on those things that are of most importance in the production of good butter and cheese and in the handling of market milk. From 11 a. m. to 12 m. on each of the days named, any one interested may have an opportunity of reviewing the work of the judges. This will make it possible for those who are interested, and yet do not feel competent to enter the judging contest, to obtain information as to how the qualities of dairy products are determined.

GENERAL INFORMATION

The Farmers' Week program, much condensed, will appear in the February issue of the Announcer, which will be ready for distribution about the tenth of January. The full detailed program will be available for visitors at the registration desk, or may be had in advance on application to the Extension Office, College of Agriculture, Ithaca.

All of the railroads operating under the Trunk Line Association have granted rates at one and one half cents per mile in each direction from all points within one hundred and fifty miles of Ithaca. For further particulars apply to your local agent.

Special attention is called to the fact that the dates for Farmers' Week are February 10 to 15, 1913—a week earlier than in previous years.

GENERAL ANNOUNCEMENTS

DEPARTMENT OF FORESTRY

Another full professorship in the Department of Ferostry has been established, and the position has been filled by the appointment of Arthur B. Recknagel. Mr. Recknagel is a native of New York State. He graduated from Yale College in 1904 and from the Yale Forest School in 1906. Since graduation Mr. Recknagel has been in the employ of the United States Forest Service and has had a wide range of experience in many sections of the country. He has returned recently from a year's study of forestry in Europe, and is at present Assistant District Forester in District 3 of the United States Forest Service, with headquarters at Albuquerque, New Mexico. Mr. Recknagel begins his work at Ithaca on February 1, 1913. He is to teach forest management, lumbering, and wood technology. In the spring term he will have charge of the eight-weeks camp for graduate students, the purpose of which is to give the men experience in general work in the woods, and particularly to enable them to make a working plan of a large forest tract in the Adirondacks or in Pennsylvania.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 321.—COMPUTING RATIONS FOR FARM ANIMALS

In the census of 1900 it was seen that the average dairy cow in the State of New York produced in one year 4,410 pounds of milk. If this cow is fed 10 pounds of hay, 40 pounds of silage, and 8 pounds of grain per day for six months, the above quantity of milk will not pay for her food and pasturage, and return enough besides to pay for the labor in taking care of her, the cost of housing, and the interset on the money invested in her.

This low production and loss in keeping is due partly to lack of knowledge of the correct practice in feeding. The Experiment Station bulletin here discussed has been prepared by the Department of Animal Husbandry in order to give information concerning the principles and practice of feeding animals. In the first part of the bulletin the requirements of the animal body are discussed and the manner in which the food fulfills these requirements is described. A discussion of the composition of foods follows. In Table I is given the total and digestible composition of all the common foods used for animals. The usual method of computing a ration is explained. The daily food requirements of all classes of farm animals are given in Table 2. A shorter and easier method of computing rations by means of tables 2 and 3, is then explained. In the last part of the bulletin illustrative rations are computed for horses, swine, and dairy cows.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

VOL. 2 **ITHACA, N. Y., FEBRUARY, 1913** **NO. 5**

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

FARMERS' WEEK—1913

Railroad tickets.—Tickets to Ithaca can be purchased from the railroads operating under the Trunk Line Association at "a cent and a half a mile in each direction from points in New York State, except that no fares to apply from New York City or points within fifty miles thereof; tickets to be sold and good going February 10 to 15, and returning to reach original starting point not later than February 16." Apply at local station for rates.

Buildings.—The New York State College of Agriculture is on the eastern side of the campus of Cornell University. It consists of eight buildings, three of which are closely connected and extend east and west. The large central building of this group is known as Main, and connected with it by covered loggias are the Agronomy building on the west and the Dairy building on the east. The Animal Husbandry building is situated near the eastern end of the Dairy building, and the Farm Mechanics building is directly east of the Animal Husbandry building. The new Home Economics building is north of the Main building and next to the new Auditorium, which is under construction. The greenhouse building and the glasshouses are east of the Dairy building. The new Poultry Husbandry building is east of the greenhouse. The university barns are located about half a mile due east of the Main building.

Lecture room and laboratories.—The rooms in the buildings of the College of Agriculture are numbered independently. All rooms on the first floor bear numbers between one and two hundred, those on the second floor between two and three hundred, and so on. The location of demonstrations and lectures is indicated by giving the name of the building and the number of the room; thus, Main 392 is a lecture room on the third floor of the Main building.

Checking room.—Basement, Main building, for coats and parcels.

Guides to campus and farms.—Parties of five or more will be furnished guides to points of interest on the university campus and farms by applying to the Information Bureau. A conveyance in charge of student guides will leave the Animal Husbandry building for the farm barns daily at 1 p. m., 2 p. m., 3 p. m., and 4 p. m. Twenty persons can be accommodated on each trip.

Information bureau.—Apply to this bureau on the first floor, Main building, for programs and information.

Room and board.—A directory of available rooming and boarding places will be found at the Information Bureau. Plans have been made to insure comfortable accommodations for all visitors.

Meals.—It is expected that lunches will be served from 11 a. m. to 2:30 p. m. and from 4 to 6 p. m., in the cafeteria in the new Home Economics building.

Conventions and conferences.—A number of conventions and conferences will be held at this time. Among these will be: The New York State Drainage Association (Monday, Tuesday); Home-makers' Conference (Tuesday to Saturday); New York Plant Breeders' Association (Tuesday to Thursday); New York State Country Church Conference (Tuesday); New York State Vegetable Growers' Association (Tuesday to Thursday); Rural School Education Conference (throughout the week); Conference of Poultry Associations (Tuesday); Cornell Dairy Students' Association (Wednesday); New York State Federation of Floral Clubs (Wednesday); Students' Association of the New York State College of Agriculture (Thursday); and New York State Rural Engineering Society (Thursday). The programs for the above are included in the general program following.

Exhibits.—Another feature of the week will be the exhibits arranged by the various departments. Among these will be: The Animal Husbandry exhibit; the exhibit of Dairy Industry, showing bacteria and their relation to clean milk; an exhibit of injurious insects, animal parasites, and the like, by the Department of Entomology; the Farm Mechanics exhibit of various water-supply systems and farm tools; the Forestry exhibit; the Home Economics exhibit; an exhibit showing the improvement of plants by the Department of Plant-Breeding; demonstrations and exhibits of plant diseases; an exhibit by the Department of Plant Physiology, showing benefits from legume crops; a potato exhibit; an exhibit of books from the traveling libraries; and exhibits from the rural schools.

Program.—The program is given below in most condensed form. The full program, in pamphlet form, may be obtained at the registration desk.

LECTURES AND DEMONSTRATIONS

MONDAY

9 a. m.—Professor Glenn W. Herrick.—Insect pests of pears, peaches, and plums. Repeated Saturday, 11 a. m.
Professor H. H. Wing.—The business and accounts of the Department of Animal Husbandry.

10 a. m.—Professor E. R. Minns.—Observations and experiments with alfalfa. (Illustrated.)
Professor C. S. Wilson.—Fruit for the home orchard.
Professor John Bentley, jr.—Determining the sale value of timber in the farm woodlot. Repeated Thursday, 11 a. m.
R. P. Trask.—Judging for constitutional vigor. (Lecture and demonstration.)
W. G. Krum.—Breeding for egg-production. (Lecture with charts.)

11 a. m.—Professor J. L. Stone.—Bean-growing.
Professor E. O. Fippin.—Soils of the university farm and their relation to those of the State.
E. S. Guthrie.—Butter-making on the farm.
Professor M. W. Harper.—Regular class exercise: The horse.
L. M. Hurd.—Feeding growing stock.
W. G. Krum.—Feeding for egg-production.

12 m.—Dr. G. F. Warren.—Some advice to city persons who expect to farm.
Dr. C. H. Myers.—Timothy-breeding. Repeated Wednesday, 12 m.
Dr. F. S. Jones.—Important poultry diseases.

2 p. m.—Acting President T. F. Crane.—Address of welcome.
New York State Drainage Association. Professor J. L. Stone.—Drainage operations of the university farm.
E. W. Benjamin and O. B. Kent.—Contest: Killing and picking poultry.

3 p. m.—Regular practice in horse-judging (at 3:30).
E. W. Benjamin and R. P. Trask.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd and W. E. L. Smith.—Laboratory practice course: Killing, picking, drawing, and packing poultry.
T. E. Schreiner and C. J. Perry.—Laboratory practice course: Study of the structure of the egg.
O. B. Kent and L. H. Cuthbert.—Laboratory practice course: Dissecting poultry (study of anatomy and physiology of poultry).
Amos Barnes.—Some results of drainage on hill lands.
Dr. M. F. Barrus.—Control of the bean anthracnose. Repeated Thursday, 12 m.
L. S. Tenny.—Marketing problems in fruit-growing.
Professor S. N. Spring.—New laws giving relief from taxation on forest lands. (Repeated by Mr. Pettis, Friday, 3 p. m.
Rural Engineering Conference (until 4:30).

4 p. m.—Laboratory practice courses in poultry husbandry (continued).
Professor K. C. Livermore.—Some successful New York farms.
H. E. Cox.—The development of a farm water-supply system.

7:30 p. m.—Round-Up Club. Students in charge.

8 p. m.—Winter-Course prize speaking contest.
Professor J. F. Barker.—The public's interest in land drainage.
Dr. J. H. Squires.—The use of dynamite in land drainage.
The farm drainage prize competition.

TUESDAY

9 a. m.—Professor C. S. Wilson.—Small fruits for the home garden.
Professor James E. Rice.—Laws governing the development of the egg. (Illustrated.)
Professor H. H. Wing.—Regular class exercise. Principles of breeding farm animals.
New York State Country Church Conference. Dean J. W. A. Stewart, presiding. Rev. A. S. Hoyt.—Educational value of the country church.
New York Plant Breeders' Association. Round-table talks on plant-breeding methods.
New York State Vegetable Growers' Association. Report of committee on cooperation.
L. C. Timmerman.—Farm drainage in the Mohawk Valley.
C. R. White.—Experience in the organization and management of a drainage district under the provisions of the Agricultural Drainage Law.
Home-makers' Conference. Clara W. Browning.—Introductory talk on foods.
Competitive scoring of butter.

10 a. m.—Dr. R. Y. Winters.—The relation of plant-breeding to agriculture.
Henry Greffrath.—Vegetable-growing on muck land.
I. C. H. Cook.—The outlook for farm drainage in New York.
Professor H. C. Troy.—Testing milk.
John R. Boardman.—The country church in relation to social and recreational conditions.
Professor Flora Rose.—Boys and girls.
Professor Walter Mulford.—How to care for the woodlot in such a way that tax relief can be obtained.
Dr. G. F. Warren.—Regular class in Farm Management I.

11 a. m.—Professor E. S. Savage.—Feeding dairy calves.
Ida S. Harrington.—The economy and preparation of left-overs.
Professor S. N. Spring.—Forest planting. (Illustrated.) Repeated Saturday by Mr. Pettis.
L. M. Hurd.—The large-flock system of brooding chickens.
Dr. H. H. Love.—The breeding of wheat and oats.
Jas. A. D. S. Findlay.—Drainage legislation is more needed.
Ellis Knapp.—Some experience in drainage on hill land.
A. E. Wilkinson.—Cabbages.
R. D. Anthony.—Pruning fruit trees. (Illustrated.)
Professor E. L. Earp.—The country church in relation to community voluntary organizations.

12 m.—Professor C. A. Rogers.—The poultry house for New York State.
W. W. Fisk.—Fancy cheese for the farm.
New York State Drainage Association.
Professor E. G. Montgomery.—Growing corn for silage. Repeated Saturday, 12 m.
Extension work in home economics. (Conference.)
Professor H. W. Riley.—Septic tanks for house drainage.
New York State Plant Breeders' Association. Business meeting.
S. J. Cook.—Tomatoes for market and for canning.
Edward VanAlstyne—Agricultural conditions and possibilities.

1 p. m.—Dr. G. F. Warren.—Types of farming on dairy farms.
Dr. Donald Reddick.—Factors influencing the control of apple scab. Repeated Friday, 3 p. m.

2 p. m.—Dr. W. H. Jordan.—Governmental aid to farmers.
B. B. Robb.—Characteristics and quality of farm drain tile.
F. E. Martin.—Blind drainage.
Round-table on irrigation (until 3:30).
Reverend C. W. Shelton.—The country church in its relation with religious conditions and forces.
Students' live-stock show and competition. Mr. E. J. Misner, chairman of students' committee.
Professor C. A. Rogers and H. A. D. Leggett.—Contest: Judging for constitutional vigor.

3 p. m.—Demonstration: Bread-making (until 4:30). In charge of extension class in home economics.
J. K. Wilson.—Inoculation for legumes.
Report of Committee on Transportation (until 5 p. m.).
Professor C. R. Crosby.—Insects causing knotty apples.
Reverend S. E. Persons.—The regeneration of a rural community through the church.
Professor S. N. Spring.—Field trip to see two forest plantations within a mile of the college buildings.
Professor W. A. Stocking, jr.—The milk supply and products of the Department of Dairy Industry.
A. D. Brusehaber.—The Cyclone ditching plow; its operation and cost.
H. C. Tiffany.—Economic farm drainage.
E. W. Benjamin and R. P. Trask.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd and W. E. L. Smith.—Laboratory practice course: Killing, picking, drawing, and packing poultry.
T. E. Schreiner and C. J. Perry.—Laboratory practice course: Study of the structure of the egg.
O. B. Kent and L. H. Cuthbert.—Laboratory practice course: Dissecting poultry (study of anatomy and physiology of poultry).

4 p. m.—Professor K. C. Livermore.—The effect on profits of efficiency in the use of labor.
New York State Drainage Association. Election of officers.
E. L. Markell.—Demonstration of the grading and packing of apples.
Professor J. L. Stone.—The university farm.
Reverend C. S. Tator.—Religious centers and community workers in their relation to an efficient rural democracy.
Demonstration: Bread-making. In charge of extension class in home economics.
Laboratory practice courses in poultry husbandry (continued).

6 p. m.—Meeting and banquet of former and present winter-course students in poultry husbandry.

7:30 p. m.—Professor H. H. Wing.—What a farmer saw in Europe.
Country Church Conference:
Director L. H. Bailey.—Opening remarks.
John R. Boardman.—The relation of the church to country-life progress.
Professor E. L. Motgan.—Community cooperation for community progress.

8 p. m.—Poultry meeting:
Dr. Raymond Pearl.—The comparative influence of the male and the female in the inheritance of egg-production.
Dr. Philip B. Hadley.—The most important results of recent investigation of the cause and cure or control of poultry diseases.

WEDNESDAY

9 a. m.—Dr. G. F. Warren.—Business methods on the poultry farm.
Professor E. O. Fippin.—Lime for soil improvement.
Round-table talks on plant-breeding methods.
Professor A. C. Beal.—Greenhouse construction. (Illustrated.)
Professor Glenn W. Herrick.—Common insect pests of the apple orchard.
M. J. Prucha.—Preparation and use of pure cultures for legume inoculation.
Professor H. H. Wing.—Possibilities of mutton production in New York State.
Professor Flora Rose.—Milk in the diet.
Regular class in forestry, Course 16.
Conference: Managers of State Institutions' Farms.

10 a. m.—R. P. Trask.—Judging for constitutional vigor. (Lecture and demonstration.)
Professor James E. Rice.—Breeding for egg-production. (Lecture with charts.) At 10:30 a. m.
Professor H. H. Whetzel.—Lessons to be learned from the potato-rot epidemic of this year. Repeated Friday, 1 p. m.
S. D. House.—The honeybee and its habits.
New York State Federation of Floral Clubs.
Dr. Edmund M. Mills.—The rose and its culture. (Illustrated.)
Paul Work.—Local growers' organizations and their possibilities.
Samuel Fraser.—Some suggestions in regard to the propagation of stock from individual fruit trees.
Cornell Dairy Students' Association.
Professor W. A. Stocking, jr.—Bacteria and the dairyman. (Illustrated.)
Professor H. E. Ross.—Care of milk in the home.

11 a. m.—Professor J. L. Stone.—Alfalfa.
Dr. H. H. Love.—Corn-breeding.
H. A. Bunyard.—Twentieth century horticulture.
E. H. Hallett.—Market-gardening.
Professor H. E. Ross.—Importance of temperature in the care and handling of milk. (Illustrated.)
Cornell Dairy Students' Association.
Professor M. W. Harper.—Regular class exercise: The horse.
Professor Helen B. Young.—The farm home.
Professor A. B. Recknagel.—The work of the United States government in providing for a permanent timber supply. A description of the work that is being done on the national forests. (Illustrated.)
L. M. Hurd.—Feeding growing stock.
W. G. Krum.—Feeding for egg-production (at 11:30).

12 m.—Dr. C. H. Myers.—Timothy-breeding. (Illustrated.)
L. S. Tenny.—Orchard management. (Illustrated.)
New York State Federation of Floral Clubs. Business session.
Dr. G. F. Warren.—Ways of telling which crops pay. (Illustrated.)
Cornell Dairy Students' Association.
Professor James E. Rice.—The Cornell University poultry farm; its organization, management, and results.
Professors Martha VanRensselaer and Flora Rose.—Home economics at Cornell.

1 p. m.—Dr. W. M. Wilson.—Weather forecasting by the United States Weather Bureau.
Professor K. C. Livermore.—Farm layout.

2 p. m.—Honorable Calvin J. Huson.—Agricultural interests in the State of New York.
George Arnold.—Asters and their culture.
New York State Vegetable Growers' Association. Business session.
Cornell Dairy Students' Association.
Competitive cow-judging demonstration.
Demonstration: The root-nodule bacteria of legume crops. M. J. Prucha and J. K. Wilson. (Continued throughout the afternoon.)
Dedication of the new Poultry Husbandry building.
Conference: Managers of State Institutions' Farms.

3 p. m.—Dedication of new Poultry Husbandry building (continued).
Professor E. O. Fippin.—Composition, storage, and use of stable manure.
S. D. House.—Management of the apiary.
A. L. Thompson.—Results of cost accounts.
Dr. Donald Reddick.—Diseases of florist crops. (Round-table talk.)
New York State Vegetable Growers' Association. Business session.
Professor H. W. Riley.—Gasoline engines; how to choose one. (Illustrated.)
Cornell Dairy Students' Association.
Anna B. Comstock.—Garden flowers; what they are doing.
Professor Walter Mulford.—County forests; an opportunity for the counties of New York State. (Illustrated.)
Rural Engineering Conference.

4 p. m.—S. D. House.—Management of the apiary (continued).
E. L. Markell.—Demonstration of the grading and packing of apples.
Cornell Dairy Students' Association.
Professor E. R. Minns.—Feeding the grass crop.
Professor John Bentley, jr.—Choosing the kinds of trees to raise in the forest woodlot.
Professor W. C. Baker.—Pictures for the home.
Reunion of winter-course students in home economics.

6:30 p. m.—Horticultural banquet.

7:30 p. m.—Open meeting of Round-Up Club.

8 p. m.—Honorable C. J. Huson.—New York State dairy laws and their relation to the dairyman.
Professor George W. Cavanaugh.—An illustrated lecture on agricultural chemistry.
Dedication of the new Poultry Husbandry building (continued).

THURSDAY

9 a. m.—Professor James E. Rice.—Environmental conditions influencing the production of eggs. (Illustrated.)
Professor E. R. Minns.—Potato statistics.
Round-table talks on plant-breeding methods.
New York State Rural Engineering Society.
Professor C. F. Hirshfeld.—Gas engines for fuel oils. (Illustrated.)
Henry Greffrath.—Possibilities among crops little grown on muck land.
Professor C. S. Wilson.—Varieties and planting plans for the commercial orchard.
Professor H. H. Wing.—Regular class exercise: Principles of breeding farm animals.
Professor Martha VanRensselaer.—The fireless cooker.
Professor Walter Mulford.—How to care for the woodlot in such a way that tax relief can be obtained. (Illustrated.)
Rural Bankers' Conference.
Conference: Teachers of agriculture. Under auspices of New York State Education Department.
Competitive scoring of cheese.
Horse-training demonstration and competition.

10 a. m.—Professor J. L. Stone.—Potatoes.
S. D. House.—Hives, fixtures, and manipulation.
New York State Rural Engineering Society. Business meeting.
Dr. C. H. Myers.—Timothy contest and distribution of seed.
Annual meeting of Students' Association. Director Bailey.—The correlation of different lines of agricultural work.
H. L. Ayres.—Some dairy conditions in New York State.
Mary P. Parsons and Caroline Webster.—How to get books for the household.
E. W. Benjamin.—Care and preservation of eggs.
Rural Bankers' Conference.
Dr. G. F. Warren.—Regular class in Farm Management I.

11 a. m.—L. M. Hurd.—Large-flock system of brooding chickens.
W. G. Krum.—Fattening poultry for market, and the preparation of homemade disinfectants and lice powder. (Lecture and demonstration, 11:30.)
Dr. A. W. Gilbert.—Potato-breeding.
S. D. House.—Hives, fixtures, and manipulation (continued).
Professor George Young, jr.—Principles of barn-framing. (Illustrated.)
E. H. Hallett.—Growing early plants.
Professor P. J. Parrot.—Some insect pests and insecticides of the year.
Annual meeting of Students' Association.
Professor H. C. Troy.—Testing butter for moisture and salt.
Professor Flora Rose.—Bread-making.
Professor John Bentley, jr.—Determining the sale value of timber in the farm woodlot.
Rural Bankers' Conference.

12 m.—Dr. M. F. Barrus.—Control of bean anthracnose.
Professor H. W. Riley.—Septic tanks for house drainage.
Dean H. E. Cook.—Business applied to agriculture.
Report of committees on legislation and investigation.
A. L. Thompson.—Methods of cost accounting.
Annual meeting of Students' Association.
Professor Flora Rose.—Bread-making.
Rural Bankers' Conference.
Dr. F. S. Jones.—Important poultry diseases; prevention and cure.

1 p. m.—Professor E. O. Fippin.—Commercial fertilizers.
Professor C. S. Wilson.—Orchards on the university farm.

2 p. m.—Dean L. H. Bailey.—The next step in the country-life movement.
E. W. Benjamin and O. B. Kent.—Contest: Judging eggs and judging dressed poultry.
Dr. Donald Reddick.—Round-table talk on plant diseases.
Horse parade and demonstration.

3 p. m.—E. W. Benjamin and R. P. Trask.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd and W. E. L. Smith.—Laboratory practice course: Killing, picking, drawing, and packing poultry.
T. E. Schreiner and C. J. Perry.—Laboratory practice course: Study of the structure of the egg.
O. B. Kent and L. H. Cuthbert.—Laboratory practice course : Dissecting poultry (study of anatomy and physiology of poultry).
S. D. House.—Hives, fixtures, and manipulation.
Dean H. P. Baker.—The forestry problem of New York State.
Dr. Donald Reddick.—Round-table talk on plant diseases (continued).
C. E. Embree.—Successful cooperation as lately developed in Maine.
Rose LeV. Morgan.—Music in the home.
New York State Experimenters' League.
Meeting for discussion of a state-wide organization of potato-growers (at 3:30).
Rural Engineering Conference.

4 p. m.—Meeting for discussion of a state-wide organization of potato-growers (continued).
S. D. House.—Hives, fixtures, and manipulation (continued).
Professor E. O. Fippin.—The importance of thorough tillage.
E. L. Markell.—Demonstration of the grading and packing of apples.
Dr. G. F. Warren.—Types of farming for New York.
Dr. W. L. Williams.—Retained afterbirth in cows.
Meeting of Cornell Study Clubs.
New York State Experimenters' League.
Laboratory practice courses in poultry husbandry (continued).

7:30 p. m.—Professor H. H. Wing.—Animal husbandry round-table.

8 p. m.—Meeting in charge of Department of Horticulture.
Dean L. H. Bailey.—Address.
Special musical program by the student musical clubs.

8 p. m.—Meeting in charge of Cornell University Poultry Association.
G. H. Masland.—Methods of keeping eggs for hatching.
P. R. Guldin.—A study of the question why some poultry farms fail while others succeed.
F. J. Burgdorff.—The marketing of poultry products in New York State.
E. L. Andrews.—Some hard poultry problems.

FRIDAY

9 a. m.—Professor James E. Rice.—Types of successful and unsuccessful poultry farms. (Illustrated.)
Professor E. S. Savage.—Regular class exercise: Principles of feeding.
Horse-training demonstration and competition.
A. E. Wilkinson.—Planning and planting the home vegetable garden.
E. W. Benjamin.—Dressing, trussing, and carving a chicken.
Professor Glenn W. Herrick.—Insect pests of forage crops.
Caroline Webster.—Conference: Books for the household.
Conference: Teachers of agriculture. Under auspices of New York State Education Department.
Competitive scoring of milk.
Professor J. L. Stone.—Buckwheat-growing.

10 a. m.—Dr. G. F. Warren.—Some factors that control profits in farming.
R. P. Trask.—Judging for constitutional vigor. (Lecture and demonstration.)
W. G. Krum.—Breeding for egg-production. (Lecture with charts.) At 10:30.
S. D. House.—Diseases of the honeybee.
George Arnold.—Planting the home grounds. (Illustrated.)
M. C. Burritt.—Business methods in fruit-growing.
W. W. Fisk.—Methods of selling milk.
Dr. D. H. Udall.—Physical examination of animals.
Alice G. McCloskey.—Appreciation of books.
Professor S. N. Spring.—Field trip to see two forest plantations within a mile of the college buildings.

11 a. m.—Dr. V. A. Moore.—The underlying principles in the control of infectious diseases of animals.
S. D. House.—Diseases of the honeybee (continued).
Professor Lewis Knudson.—Mushroom-growing for the home.
A. E. Wilkinson and T. Greiner.—Round-table conference on home gardening.
Professor G. W. Cavanaugh.—Some applications of chemistry to agriculture.
L. M. Hurd.—Feeding growing stock.
W. G. Krum.—Feeding for egg-production (at 11:30).
E. S. Guthrie.—Moisture incorporation and distribution in butter.
Professor M. W. Harper.—Regular class exercise: The horse.
Ida S. Harrington.—Homemade sweets (with demonstration).

12 m.—Professor H. W. Riley.—Water-supply systems. (Illustrated.)
Professor A. C. Beal.—Sweet peas and their culture.
Professor E. O. Fippin.—Recent advances in the knowledge of soil fertility.
Dr. C. P. Fitch.—Germs causing disease in animals.
Professor Martha Van Rensselaer.—Scientific management.
E. W. Benjamin.—Some special problems in the marketing of poultry products.

1 p. m.—Dr. H. H. Love.—Breeding of small grains.
Professor H. H. Whetzel.—Lessons to be learned from the potato-rot epidemic of this year.

2 p. m.—Rose LeV. Morgan.—Lecture recital: Folk songs.
Professor C. A. Rogers and H. A. D. Leggett.—Contest: Judging live poultry for exhibition.
Auction of farm teams and surplus live-stock.
Lua A. Minns.—House plants and their culture.

3 p. m.—Dr. Donald Reddick.—Factors influencing the control of apple scab.
Professor E. G. Montgomery.—The evolution of crop production in New York State. (Illustrated.)
S. D. House.—The production and marketing of honey.
C. R. Pettis.—The new laws giving relief from taxation on forest lands.
A. B. Cornelius.—Demonstration in propagation and handling of flowers and garden plants.
A. L. Thompson.—Methods of cost accounting.
Professor Helen B. Young.—The art of furnishing.
Rural Engineering Conference.
E. W. Benjamin and R. P. Trask.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd and E. L. Smith.—Laboratory practice course: Killing, picking, drawing, and packing poultry.
T. E. Schreiner and C. J. Perry.—Laboratory practice course: Study of the structure of the egg.
O. B. Kent and L. H. Cuthbert.—Laboratory practice course: Dissecting poultry.

4 p. m.—S. D. House.—The production and marketing of honey.
Professor E. R. Minns.—Silo construction. (Illustrated.)
R. D. Anthony.—Renewal of the neglected orchard. (Illustrated.)
Laboratory practice courses in poultry husbandry (continued).

8 p. m.—Eastman Stage contest.

SATURDAY

9 a. m.—Professor J. L. Stone.—Clovers in New York State agriculture.
H. B. Knapp.—Practical methods of budding and grafting.
Professor E. S. Savage.—Regular class exercise: Principles of feeding.
Edith Fleming.—Household accounts.
Boys' Conference.

10 a. m.—Professor E. O. Fippin.—The maintenance of organic matter.
Dr. G. F. Warren.—Cost accounting.
Professor Martha Van Rensselaer.—The housekeeper and the cost of living.
C. R. Pettis.—Forest planting.
Boys' Conference.

11 a. m.—Professor E. R. Minns.—Soy beans for New York farms. (Illustrated.)
Professor Glenn W. Herrick.—Insect pests of pears, peaches, and plums.
Professor Flora Rose.—The relation of appetite to digestion.
Boys' Conference.

12 m.—Professor E. G. Montgomery.—Growing corn for silage.
Boys' Conference.

SPECIAL EMPLOYMENT NOTICE

In the winter-courses now in session are a considerable number of young men who will be available for positions at the close of the courses on February 14. They will be fitted to take positions ranging from helpers to foremen in butter and cheese factories, and on poultry, fruit, truck, stock, and general farms. Some that have had considerable experience will be fully qualified for the management of farms. Persons desiring to engage such help should at once address the Secretary, College of Agriculture, Ithaca, N. Y.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations. extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

THE APPLE RED-BUGS

(C. R. Crosby)

During the past season numerous complaints of injury to apples by the two species of apple red-bugs have been received from practically all the apple-growing sections of the State except the Lake Champlain valley. The eggs of these insects, which are inserted in the bark of the smaller branches of apple trees, hatch just as the leaves of the cluster buds are expanding and while the trees are in blossom. The small, brilliant, tomato-red nymphs at first feed on the tender leaves, which they puncture with their slender, needle-like mouth-parts, causing minute reddish dots.

As soon as the fruit sets the insects begin feeding on the young apples. Those stung most severely soon fall to the ground, while others remain on the tree and mature but are knotty, deformed, and unsalable. As a rule, apples injured by red-bugs are not puckered at the blossom end as is the case in injury from the aphis. A full account of the red-bugs was published in Bulletin 291 of this station, which is still available.

Experiments and the experience of certain commercial growers indicate that the apple red-bugs can be controlled by spraying with nicotine solution. "Black-leaf 40" tobacco extract, used at the rate of 1 part in 800 parts of dilute lime-sulfur and arsenate of lead, has given satisfactory results when applied as the blossoms first show pink and again just as the last of the petals are falling. These applications coincide with the first spray for scab and with the calyx spray for the codling moth.

As this is a little-known pest, it is often desirable to determine in advance of the spraying season whether or not red-bugs are present in an orchard. This may be done by cutting off branches of bearing wood and placing them in water in a warm room in order to force out the leaves. If eggs of the red-bugs are present the brilliant red nymphs will soon appear and cover the opening leaves with minute reddish dots. The branches may be brought in any time after March 1; if brought in earlier the eggs are not sure to hatch.

If growers who suspect the presence of red-bugs in their orchards will send us bundles of freshly cut branches, we will be glad to test them in the insectary and report our findings. The branches should be about two feet in length and may be conveniently wrapped in gunny sacks. They may be sent by express, addressed to C. R. Crosby, The Insectary, 45 East Avenue, Ithaca, New York.

OAT SMUT

(M. F. Barrus)

In many parts of New York State the loss from oat smut during 1912 amounted to twenty-five per cent or more of the crop. This great loss might have been prevented easily and cheaply by treating the seed with a solution of formaldehyde before sowing. The abundance of smut last year probably means that a large percentage of the oat seed to be sown this spring contains the spores of the smut fungus and that there will be a general infection of the oat plant again this year unless measures are taken to kill these spores.

In order to do this proceed as follows: Spread the cleaned oat seed on a clean barn floor to the depth of about two inches. Sprinkle the seed with a solution of formaldehyde made by diluting 1 pint (1 pound) of the commercial 40-per-cent formaldehyde solution with 45 gallons of water. This amount of the solution will treat about 60 bushels of seed. Sprinkle enough on so that each seed is well wetted; it is necessary to shovel the seed over while sprinkling in order to accomplish this. After sprinkling shovel the seed into a pile, cover with canvas or blankets, and leave thus for several hours or over night. On removing the covering spread out the seed again so as to dry it enough to permit its being sown with a drill. In sowing, allowance should be made for the swollen condition of the seed, according to the amount of seed used per acre.

This treatment can be given at any time before sowing the seed but, unless it is done just previous to sowing, the seed should be thoroughly dried.

In order to insure perfect control of the disease it is advisable to dip into the formaldehyde solution any grain sacks that may be used for holding the treated seed.

The cost of material for this treatment is less than a cent per bushel of seed treated, and if one uses his own seed the treatment need not be given every year.

TESTING DAIRY PRODUCTS

The Department of Dairy Industry is prepared to do a limited amount of testing of different kinds of dairy products. Any person in New York State may send samples to the Department for any of the following tests, for which no charge will be made:

(1) Butter, for moisture or salt tests, or to be scored for flavor and texture.

(2) Cheese, for moisture test or to be scored for flavor and texture.

(3) Milk or cream, for tests as to butter-fat, solids. or bacteria, or to be scored for flavor and general quality.

The Department is receiving many requests from dairymen for one or more of the above tests and will be glad to accommodate other persons in the same way. With the present laws governing the composition of dairy products, and the city requirements for market milk. the need for careful testing is becoming increasingly necessary.

Persons desiring to send samples should write to the Department for directions regarding sampling and shipping.

THE NEW YORK STATE DRAINAGE ASSOCIATION

The competition conducted by the Drainage Association for best reports of practical drainage experience is continued open for another year. By this means the association is collecting many useful data concerning the value and methods of practical farm drainage. The prizes include three medals and two cups. Further information concerning this competition may be obtained from the secretary of the association at Ithaca.

The first volume of the proceedings of the association, a pamphlet of one hundred pages containing data of much practical value bearing on the methods, cost, and results of underdrainage, may be procured from the secretary of the association for twenty-five cents. A copy will be given also with each new membership; the admission fee is one dollar. The second volume of proceedings, containing the papers presented and the discussions held at the meetings for the past two years, will be printed during the spring and will be sent to all members of the association without additional charge.

THE PLANTING OF NON-LEGUMES WITH LEGUMES

(Department of Soil Technology)

In spring, when clover is generally seeded and when plans for cover-crops, green manures, and mixed forage crops are being made, the value of having leguminous plants associated with non-leguminous plants should be kept in mind. The general value of legumes in soil improvement has been admitted, but recent investigations reported in Bulletin 294 of this experiment station, entitled "A Heretofore Unnoted Benefit from the Growth of Legumes," are of especial interest to farmers. Not only does the legume gather nitrogen from the atmosphere by means of bacteria living in the nodules on its roots, thereby itself making a larger growth, but some of the nitrogen so gathered is passed on to the grass, grain, or other non-legume associated with it. The result is a larger growth of the non-legume, and also a higher content of protein, or nitrogenous material, which considerably increases its value as food for stock. Such benefit has been noted from the growth of clover and timothy, alfalfa and timothy, and oats and peas. Other combinations have not been studied. The increased growth of plants in combination over that of single crops, together with the improved composition of the former, has resulted in some cases in an increase of more than thirty per cent in the production of protein per acre. This increased value probably extends to the roots and stems left in the soil, and means much in the production of food for stock and in soil improvement.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 322—THE LARCH CASE-BEARER

This bulletin discusses the life history of the larch case-bearer, the injuries that it causes, its distribution, its food plants, and the methods of control.

The insect hibernates as a partly grown larva in its curious and interesting case on the branches of larches. In spring the larva migrates to the opening buds and begins to mine in the leaves. It eats a tiny hole through the epidermis of a leaf and mines out the inside tissues as far as it can reach on each side of the entrance opening. Leaves that are attacked soon assume a bleached, whitened appearance and when deserted by the larva they shrivel and curl. The larvae attain their growth and the moths begin to appear about the latter part of May and the first of June. Within a week to ten days they deposit their tiny, cinnamon-colored eggs on the leaves. These soon hatch and the larvae from them mine in the leaves, living inside the leaves until September. In September the larvae make their cases, and after feeding until October they fasten these cases to the branches, in which position they pass the winter. There is only one generation a year.

The larch case-bearer is becoming a pest of considerable importance in forests in the northeastern United States. The insect has been present on larches in the vicinity of Ithaca for several years and undoubtedly has done much injury. The records of the Department of Entomology at Cornell University show that complaints of injury have been received from Franklin county, New York. The author of the bulletin here discussed has also found the case-bearer in abundance on larches in the Adirondacks in the vicinity of Cranberry Lake. The work of the insect was apparent on the trees, but was almost overshadowed by the much more serious injuries of the larch sawfly.

Lime-sulfur is evidently a simple and effective remedy for this pest. Probably the best results will be obtained by applying the mixture to the trees as late as possible in the spring before the buds start growing. There is evidently no injury to buds or to tender wood at this time if the mixture is used at scale strengths, say 1 gallon to 8¼ gallons of water when the concentrated solution tests 33° Beaumé. The mixture should be applied thoroughly to all the branches, and the tree should be completely covered with the solution.

BULLETIN 323—A STUDY OF FEEDING STANDARDS FOR MILK PRODUCTION

In Bulletin 323 the literature of feeding standards with respect to the requirements of dairy cattle has been reviewed somewhat in detail, especially the work of Haecker of Minnesota and Armsby of Pennsylvania.

Following the discussion of the literature and history of the development of feeding standards, the results of experiments conducted in the Cornell University herd in the study of Haecker's standard are given in full. Studies of the application of Armsby's standard are also given. These experiments covered parts of two years and a number of cows were used.

The results of the two years experimentation are summarized in a feeding standard which is a suggested modification of the Haecker standard for milk production. This modification is suggested as particularly useful under conditions in the eastern United States as a guide in the formulating of rations for dairy cows.

BULLETIN 324—A STUDY OF THE BIOLOGY OF THE APPLE MAGGOT, TOGETHER WITH AN INVESTIGATION OF METHODS OF CONTROL

This bulletin contains the results of a long and careful study of the habits and life history of the apple maggot, together with a consideration of the methods of control. The distribution, host plants, and seriousness of this pest are discussed in some detail.

In the study of the life history of the insect it was found that the flies begin to emerge about the latter half of June and continue up to the first of August. They feed by constantly sipping the surface gum of the fruit, often moistening the surface, if dry, with a drop of saliva. The eggs are laid singly in punctures made in the skin of the fruit by means of the very slender ovipositor. The eggs hatch in two to six days, depending on the temperature of the air. The larvae feed in the pulp of the fruit for two weeks to two months or more, depending on the hardness of the fruit and on the temperature of the air. The pupa stage is usually spent in the ground, one or two inches beneath the surface, although puparia are often found within decayed fruit. The pupal period may last for only about a month for the early-emerging larvae, but it continues over the winter in late varieties.

In some seasons, at least, there appears to be a second brood of flies, the individuals of which emerge from the first to the last of September from larvae that went into the ground in the previous July. Only about one third of these early pupae develop second-brood flies; the others remain dormant during the winter and begin emerging the next July.

It was found that the apple maggot could be effectively controlled by the use of poisoned bait. Sweetened arsenate of lead proved effective but was rather slow, so that in the early experiments soluble potassium arsenate was tried. This killed the flies in thirty minutes. Subsequent observations indicate that arsenate of lead alone may control this pest if applied thoroughly to the fruit, as is done for the codling moth. Experiments during the season of 1912 showed gratifying results from the use of the following mixture:

Cheapest molasses....................	1 pound
Arsenate of lead.......................	3 ounces
Water..	4 gallons

This should be applied when the flies first emerge and repeated every ten days while the flies are in the field; and it must be renewed after each rain. The author of the bulletin has not had an opportunity to try arsenate of lead, without sweetening, on a block of infected trees; but in the case of a commercial orchard he would place considerable confidence in the effectiveness of this remedy. The main object in any case is to keep poison on the trees during the time of principal emergence of the flies, so that they can get it before the eggs are mature and ready to be laid.

Picking up windfalls may rid the orchard of the pest if consistently followed up, but it is a laborious process. Even the destruction of drops by hogs in sometimes ineffective.

Several experiments have shown that the flies are able to emerge when buried deeply in the soil, hence plowing in the fall or spring cannot be counted on for a remedy; and covering the infested fruit in pits is not recommended.

Citronella oil, kerosene, and quassia are apparently worthless with these flies.

Cold-storage stops the development of the larvae and may kill them if long continued.

In the experiments described in this bulletin, larvae failed to pupate in dry soil, their bodies shriveling and dying within the puparium; hence cultivation may prove of value by keeping a dust mulch on the surface of the soil.

BULLETIN 325—CHERRY FRUIT-FLIES AND HOW TO CONTROL THEM

The common species of cherry fruit-fly, *Rhagoletis cingulata*, has been well known for a number of years. Early in the season of 1912 it was discovered that another species must be dealt with, *R. fausta*, which had formerly not been recognized as a cherry pest in the East. The larvae of the latter species are much yellower than those of the common cherry fly or the apple maggot, and the puparia are so much darker that they can be easily distinguished from those of the other insects. Although the indications are that the common cherry fly is a rather general feeder, attacking all varieties of cherries and sometimes plums, thus far *R. fausta* has been found only in sour cherries.

The flies emerge about June 10 in the region around Ithaca, New York. They mate when five or six days old and begin ovipositing about two weeks after they emerge. The eggs are inserted into the fruit by means of a sharp ovipositor, and hatch in approximately two to four days. The number of eggs produced by each female is probably three or four hundred. In 1912 the first tiny larvae were found on June 30, about the time when the early varieties of cherries were being marketed. The infested fruit does not fall from the tree, but soon decays. The presence of the larvae can often be recognized by the fruit's having a small hole near the upper side, probably cut by the maggot for air. When the larvae are mature—about the middle of July—they fall to the ground and bury themselves about one inch. Here they change into pupae and lie dormant until the next season.

Heretofore, cherry fruit-flies have been considered among the most serious of orchard pests to control. Poisoned baits have been found so satisfactory in dealing with the closely related apple maggots that the same mixture was used against the cherry flies, as follows:

Arsenate of lead.......	3 ounces or 5 pounds
Cheap molasses........	1 pint or 3 gallons
Water....	4 gallons or 100 gallons

This mixture was applied to the trees with a hand syringe holding just a pint, which was found to be enough to sprinkle a tree of moderate size. Two treatments were put on—the first June 10, the second June 24.

The fruit of the unsprayed trees showed an infestation of fully one third of the crop; the fruit of the sprayed trees was remarkably clean, only about one sixth of one per cent being wormy. The sprayed fruit showed also a noticeable lack of brown-rot and of curculio injury.

It appears that arsenate of lead, without sweetening, may possibly control cherry flies. Fruit free from the pest resulted in one orchard from merely making two applications at codling-moth strength (4-100) during the period when the flies were emerging.

CIRCULAR NO. 14—WORKING PLANS OF CORNELL POULTRY-HOUSES

This circular contains working plans of five Cornell poultry-houses, the Cornell trap-nest, a feed hopper, a broody coop, a plain nest, and a feed-and-water car. Each house is illustrated by three plans—the floor, or ground, plan, the side elevation, or cross-section plan, and the front elevation. These plans show the sizes and number of timbers used and the arrangement of the interior fixtures.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Residents of New York State may be placed on the mailing list by indicating their desire to receive bulletins on one or more of the following subjects: Apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, New York.

Bulletins:

219. Diseases of ginseng.
226. An apple orchard survey of Wayne county.
229. An apple orchard survey of Orleans county.
260. American varieties of beans.
266. The black-rot of the grape and its control.
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it.
283. The control of insect pests and plant diseases.
285. The cause of "apoplexy" in winter-fed lambs.
286. The snow-white linden moth.
289. Lime-sulfur as a summer spray.
291. The apple red-bugs.
292. Cauliflower and brussels sprouts on Long Island.
295. An agricultural survey of Tompkins county.
297. Studies of variation in plants.
298. The packing of apples in boxes.
302. Notes from the agricultural survey in Tompkins county.
303. The cell content of milk.
305. The cause of "apoplexy" in winter-fed lambs.
307. An apple orchard survey of Ontario county.
309. The production of "hothouse" lambs.
310. Soy beans as a supplementary silage crop.
311. The fruit-tree leaf-roller.
312. Germination of seed as affected by sulfuric acid treatment.
313. The production of new and improved varieties of timothy.
314. Cooperative tests of corn varieties.
316. Frosts in New York.
317. Further experiments on the economic value of root crops for New York.
318. Constitutional vigor in poultry.
320. Sweet pea studies—III. Culture of the sweet pea.
321. Computing rations for farm animals.
322. The larch case-bearer.
323. A study of feeding standards for milk production.
324. A study of the biology of the apple maggot, together with an investigation of methods of control.
325. Cherry fruit-flies and how to control them.
327. Methods of chick-feeding (in press).
328. Hop mildew (in press).

Circulars:

1. Testing the germination of seed corn.
3. Some essentials in cheese-making.
4. Soil drainage and fertility.
8. The elm leaf-beetle.
9. Orange hawkweed or paint-brush.
12. The chemical analysis of soil.
13. Propagation of starter for butter-making and cheese-making.
14. Working plans of Cornell poultry-houses.

READING-COURSE LESSONS

COMPOSITION OF MILK AND SOME OF ITS PRODUCTS

(Lesson for the Farm Course)

Milk is one of our most important foods. Its food value depends to a considerable extent on its composition, which is variable. In this lesson are discussed the composition of milk, some of the conditions and causes of its variability in composition, the relation of the food constituents to one another, and the relation of the constituents to the care and manufacture of the product.

Milk contains five main constituents besides water, each of which is discussed separately. Special mention is made of the relative value and the commercial uses of the various constituents.

The products of milk discussed are cream, skimmed milk, buttermilk, and whey. Special emphasis is laid on the commercial importance of these products, particularly on the value of the three last-named for feeding growing animals.

SAVING STRENGTH

(Lesson for the Farm Home Course)

This lesson has been prepared with a view to suggest to those who in their daily occupations are constantly busy from sunrise to sunset, and sometimes longer, that a proper training of the muscles will lead to conservation of strength and of nervous energy. The practice of the exercises described tends to help the housekeeper to do her work with increasingly good results and with less fatigue. It is aimed to correct physical faults that occur in daily occupations and to lead away from conditions resulting in worn and premature old age. The lesson also points the way to relaxation and recreation that will make daily duties less monotonous and more inspiring. Such exercises keep the body young in spite of years—young in movement, in elasticity, in looks, and in feeling.

CHOICE AND CARE OF UTENSILS

(Lesson for the Farm Home Course)

This is the fifth lesson in the Farm-house Series of the Cornell Reading-Course for the Farm Home. The purpose of the lesson is to show that scientific management can be adapted to the needs of the kitchen as readily as to those of the shop. Awkward methods and unnecessary motions are as disastrous in the one place as in the other.

Work in the kitchen is difficult or easy, according to the tools that we have. Before buying kitchen utensils, therefore, it is well to give some study to the subject. Knowing the reputation of different manufacturers is often a guide in making a selection of utensils; familiarity with the characteristics of various wares prevents ill-considered purchases; accurate knowledge of stove and storage space insures buying utensils of proper size.

The arrangement of utensils has much to do with their usefulness. Economy of time and motions depends on conveniently arranged equipment. Storage cupboards should be so planned that their contents are easy of access, easily counted and kept in order, and protected from dust. Proper care of utensils consists in giving them whatever preparatory treatment they need before being put into service, in keeping them in repair, in protecting them against deterioration when not in use, and in using such methods for cleaning as will not injure them. A repair kit is a necessary part of an up-to-date kitchen.

Utensils that excel in one process of cookery may fail in another. The lesson gives a number of familiar cooking processes, with the utensils best adapted to them. Characteristics are given of different wares, such as iron, steel, tin, enamel ware, aluminum, copper, silver, and glass. Utensils that are equally useful for the cooking and serving of food illustrate the economy of making one motion do the work of two. This constitutes scientific management. Casserole dishes, bean pots, and meat planks are given as examples of such utensils. Paper plates, cups, napkins, and towels are described, and a few examples are given of ways in which they save work in the kitchen.

VEGETABLE-GARDENING

(Lesson for the Farm Home Course)

A lesson has been prepared on vegetable-gardening, discussing plans for a garden, the choosing and testing of seeds, preparation of the ground, and general care. Cultural methods are given for various vegetables.

THE CORNELL READING-COURSE FOR THE FARM

Residents of New York State who desire to enroll in the Cornell Reading-Course for the Farm should register for one or more of the series of lessons given below. The first lesson in each series desired is sent on enrollment and subsequent lessons are sent, one at a time, on the return of the discussion paper accompanying each lesson. Each discussion paper returned is read over carefully and a personal reply made when help can be given. When several persons in a community desire to study Reading-Course lessons in a group, assistance is given in the organization of a study club. References to books and bulletins on agricultural subjects will be given to those who have completed the study of Reading-Course lessons and desire to undertake advanced reading. The following is a list of available Reading-Course lessons arranged by series:

Series	*Lessons*
The soil	37. Drainage and larger crops.
	2. The soil: Its use and abuse.
Poultry	4. Incubation.—Part I.
	6. Incubation.—Part II.
	10. Feeding young chickens.
Rural engineering	8. Knots, hitches, and splices.
Farm forestry	12. The improvement of the woodlot.
	28. Recent New York State Laws giving relief from taxation on lands used for forestry purposes.
The horse	14. Horse-breeding to increase the farm income.
Dairying	23. The construction of sanitary stables.
	16. Practical dairy problems.
	32. Composition of milk and some of its products.
Fruit-growing	18. The renewal of the neglected orchard.
	22. The culture of the currant and the gooseberry.
	36. Culture of red and black raspberries and of purple-cane varieties(in press),
Farm crops	20. Alfalfa for New York.
	24. The rotation of farm crops.
Stock-feeding	26. Computing rations for farm animals.
Plant-breeding	41. Improving plants by selection or breeding.
Vegetable-gardening	30. Hotbed construction and management.
	34. Home-garden planning.

THE CORNELL READING-COURSE FOR THE FARM HOME

The lessons available in the Cornell Reading-Course for the Farm Home are as follows:

11. The laundry.
13. Cornell study clubs.
15. Principles of jelly-making.
17. The preservation of food in the home.—Part I.
19. The preservation of food in the home.—Part II.
21. The preservation of food in the home.—Part III.
23. Rules for cleaning.
25. Saving strength.
27. Choice and care of utensils.
29. Cost of food.
31. Household bacteriology.
33. Vegetable-gardening.
35. The flower garden (in preparation).

The Reading-Course for the Farm Home is free to residents of New York State. A lesson is issued each month. Those mentioned above are back numbers still available.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office, Ithaca, N. Y.
L. H. BAILEY, Director

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

EXTENSION WORK

In view of the widespread popular discussion of extension work in agriculture, it may be of interest to readers of the Announcer to present a general statement of the meaning and nature of extension work, together with something of the attitude of the New York College of Agriculture toward such work.

The definition.—Extension work in agriculture comprises all educational efforts at the homes and on the premises of the farming people, the conducting of local demonstrations and schools, the holding of conventions in the localities and at the institution itself, such administration at the institution as the organization of the work requires, and such other efforts as center directly in interests away from the institution. The laboratories and test-grounds of the institution must be used for the working out of many of the problems that are brought back from the farms and the establishments of the people, for very many of the questions that arise in the extension work in the field can be settled only by working them out under conditions of control. Extension work is welfare work, and is properly a part of an institution that is maintained by the people for the service of the people. The early stages of extension work are now past; it is not exhortation, nor exploitation of the people, nor the advertising of an institution, nor publicity work for the purpose of securing students. It is a plain, earnest, and continuous effort to meet the needs of the people on their own places and in their localities.

Extension work should aid the people in the solving of their own problems of farming and also of the social, economic, and educational problems of farming communities. To this end, it is necessary that trained men and women be available in many different lines of agricultural work. Persons must be specially trained for this work, as well trained as for regular teaching or for research or administration.

The motive.—The temptation is to use extension work as a means of publicity of an institution or organization. This will fail in the end, and it will react unfavorably on the institution itself. The whole motive must be sincerely to help the people, not to push or advertise the institution, nor to make publicity for any person.

If the colleges of agriculture, and other rural institutions and agencies, ever come to be dominated by the desire to aggrandize themselves or to exploit the people for the sake of appropriations, they will fail of their purpose and be repudiated by the people. Only so long as they have the spirit of service and of substantial, disinterested work will they have reason permanently to exist.

The nature of the work.—It is proper that every public institution that is doing good work at home should extend itself to the people; but it is well to bear in mind that the institution should not begin the process until it has something to extend. Extension efforts should be the result of work rather than the beginning of work.

One is likely to make the mistake of beginning the extension work first, whereas the extension work should grow gradually as the institution grows and be the natural expression to the people of the work that arises in the institution itself.

The people should not be too anxious to have extension work issue from any particular department of the institution. The extension work should come in the process of time, as the work ripens, and under such conditions it will be substantial when it comes and will produce real results.

What any locality gets in extension work should depend directly on what it wants and what it puts into the work. The rapidly growing farm-bureau work is an illustration of the fact that farmers are now taking the initiative in work in the localities, often supplying even a good part of the funds. At this day, extension should meet demands rather than make demands.

Extension enterprises are of many kinds—of any kind whereby a department or institution or organization may extend and apply itself to its constituency. Some of the extension methods in agriculture are itinerant lectures, institutes, extension schools, short courses, farmers' weeks, reading-courses, traveling libraries, publication farm trains, tests on farms and in gardens, follow-up work of many kinds, demonstration farms, farm bureaus or agencies, organized correspondence. Actual demonstration, and work directly with persons on their special problems, are in the end the best form of extension work. In the end there must be sustained teaching in the localities.

The widespread extension effort is one of the most hopeful applications of the time. It may also be one of the most inefficient, depending on how it is done and particularly on the motive that propels it. We have now passed the early experimental stages in extension work. In order to be most useful, it must be well organized—as well organized as any other work at the institution itself.

While extension work should be organized, the organization should not be of the dictator kind. The spirit of free personality in work is absolutely essential. All domineering and institutional selfishness must be eliminated. The autocratic type of organization cannot do effective extension work.

Everything depends in the end on the spirit of the place.

Let the demand grow up in the communities.—The many educational agencies are now fairly established, and the country people in general are aware of the aids that they may receive; and they are also aware for the most part of the deficiencies. There are some regions and places, of course, into which extension enterprises must be carried bodily and as a gift; but these are now relatively few. It is best to let the desires originate in the people themselves even if it is not so rapid as some of us would wish, and to be cautious of the plans of those who sit in offices.

Speaking for the New York State College of Agriculture, it was formerly our practice to pay all traveling expenses of members of the staff in several lines of extension work. Demands for assistance from the College grew very rapidly. During this time we had an opportunity to study the situation. Two facts became outstanding: first, that our appropriations would always be inadequate to meet the needs of the State; second, that we were sending assistance to many communities that were able to pay something toward these expenses themselves. We found that many communities took a deeper interest in a particular piece of extension work when there was contribution on the part of the community toward the expenses: the people naturally felt as if they were partakers rather than onlookers.

As a result of these observations we have finally arrived at the policy, excepting when there is a special reason to the contrary, of withholding until each community, society, or individual is ready to meet the traveling expenses dollar for dollar. There is no charge in such cases for salary or per diem.

This policy has proceeded successfully with the extension schools, in which the tuition fee of $1.50 for each student meets practically one half the traveling expenses of the teachers. Single lectures, lectures in series, cooperative experiments, and the like are usually conducted on this basis.

This policy automatically relieves the College of those requests that do not represent the solid backing and serious thought of the community in question. It also stimulates those who actually contribute to make the necessary arrangements in proper form so that each contributor may receive at least the full value of his contribution.

Of course, when the society, community, or individual cannot really afford to pay half the traveling expenses, we judge the situation on its own merits and often pay all the expenses until such time as the community may get itself on a working basis. We always reserve the right to aid backward or disadvantaged localities.

Now and then there is a feeling that the community is entitled to this service without direct expense because the individuals think that they have paid for it in their taxes. This feeling is not marked, however, and is easily met by pointing out the very small amount of extension service that could come to any given rural community merely on the basis of the taxes paid. The communities cannot expect any very special aid on the basis of taxation alone. Taxation supports the institution and maintains the staff: the institution is here, for such use as the people desire to make of it in an extension way.

In general.—We have arrived at standardized methods of college teaching in the sciences, professions, and arts. We are beginning to standardize our regular college instruction in agriculture, as experience accumulates.

We shall also arrive at standard methods of extension work. We appear to be now in an epoch of general exploitation and the putting over of enterprises. The safety in the situation lies in the fact that the farmer is more concerned in his plowing than in anybody's pet scheme.

Assuredly we need attention to government in rural communities, better economic opportunities, better social privileges, better institutions and organizations, and all that; but our problem is to let the educational processes work themselves out.

GENERAL ANNOUNCEMENTS

NEW YORK STATE EXPERIMENTERS' LEAGUE

The New York State Experimenters' League, an organization of experimenters among former students of the New York State College of Agriculture, has extended its membership to include farmers interested in investigating methods of better farming. Its aim is to encourage experimentation on one's own farm to the end that the farmer may discover for himself the best practices to follow. The association desires to enlist the cooperation of all who are interested in the conducting of home experiments. The gradually changing conditions of production and marketing and the constant discovery of new facts make it necessary that the farmer be alert to modify his farm practice so as to meet these changes.

The farm is the experiment station of the owner. Each has its own special problems and the operator must adapt his practices to his conditions. It is expected that each member of the Experimenters' League will conduct at least one definite experiment on his farm throughout the year. The League asks that the members keep accurate records of their experiments and at the end make complete reports to the secretary. The separate reports will be studied and a general report given at the annual meeting of the League. If there are funds available, the reports may be printed and copies distributed to the members.

The College desires to encourage experimentation and will cooperate with League members and other interested persons by furnishing detailed plans for the conduct of certain experiments. It is expected that experimenters will follow these outlines carefully and will keep the College informed as to progress. It is planned to have specialists from the College visit some of the experiments during the growing season and advise with the farmers about special questions that may arise.

It is now time to take up actively the question of experimentation for this year. Persons interested should communicate at once with the Secretary of the League if they desire help from the College. The number of experiments in which the College can cooperate is necessarily limited, and it is important, therefore, that steps be taken immediately. Address all communications to R. H. Wheeler, Secretary of the Experimenters' League, College of Agriculture, Ithaca, New York.

CULTURE OF NODULE-FORMING BACTERIA FOR LEGUMES

(L. Knudson)

The Department of Plant Physiology has for distribution to the farmers of the State pure cultures of the root-nodule-producing bacteria for inoculation of the following legumes: alfalfa, red clover, crimson clover, alsike clover, Canada field pea, soy bean, cowpea, winter vetch, spring vetch.

It is necessary to make a charge of twenty-five cents per acre quantity, this to cover shipping charges and cost of container. Fractional acre quantities are not sent out.

Full instructions regarding the use of the culture will be sent with the material. The method of application is simple.

Remittance by coin or money order must be made in advance of shipment to the Department of Plant Physiology, New York State College of Agriculture, Ithaca, New York.

NEW VARIETIES OF CHINA ASTERS

The Department of Horticulture is continuing experimental work on sweet peas and gladioli in cooperation with the national societies interested in the culture of these flowers. In addition, variety and cultural trials with China asters have been undertaken. Seed has been received from leading American and foreign growers. It is hoped that all the varieties and types of asters will be included in these experiments, and the Department requests that all persons having new varieties send in samples for testing. The results of these trials will be published as soon as authentic data have been secured.

EXTENSION WORK IN DAIRY INDUSTRY

The Department of Dairy Industry has one instructor, H. L. Ayres, whose entire time is devoted to extension work. During the summer most of his time is spent in assisting persons who desire help in the various lines of dairy work, especially in connection with butter and cheese factories and market-milk plants. He will respond to requests as far as his time will allow. Persons desiring information either by correspondence or by a personal visit will be accommodated in the order of their requests. Mr. Ayres has had years of experience in different lines of practical dairy work. Persons wishing assistance should write to the Department of Dairy Industry, Cornell University, Ithaca, New York.

SCORING OF DAIRY PRODUCTS

The Department of Dairy Industry is prepared to score samples of butter, cheese, and milk for persons in New York State. Detailed scores will be returned with criticisms and suggestions for the improvement of the product. The scoring will be done by experts who are familiar with market requirements. This will enable persons who are unable to visit the markets themselves to learn how their product compares with the market requirements. In order to economize labor it is desirable that all samples arrive at the same time. Write the Department for dates and directions for shipping.

SUMMER EMPLOYMENT

In the spring of each year the College of Agriculture is called upon to find summer employment on farms for a considerable number of its students. For the most part these students are strong, rugged fellows, ready to work. They are not working at agriculture because they cannot find something else to do, but because they intend to make farming their life work. Some of them are without farm experience, while others are fully qualified to assume the management of places. The former class are seeking experience, and desire pointers on well-managed farms run by fair-dealing men who will aid them in obtaining the training they need. They expect to be paid just what they are actually worth. They will be getting their education and at the same time, in the majority of cases, will return good value to their employers. A considerable number of farmers in the State have taken students year after year and have found the experience on the whole to be valuable and helpful to themselves; and the students are fully appreciative of the help that they have received.

The State College of Agriculture must look to the farmers of the State to aid in the education of the young men who are to be our future farmers, and it desires to make known the demands that are now upon it. The young men who are available for employment this summer fall into four general classes:

1. Persons who expect to study at the College of Agriculture but who wish to gain a practical knowledge of farming before they come. They are available at almost any time throughout the year. They are usually young men from cities who wish to become farmers. The College knows nothing about these persons except what is shown by correspondence with them. Many of them have been highly successful as farm help.

2. Students who want summer work chiefly for experience, but also to earn what they can. Usually they have had some farm experience, but not much; owing to their eagerness to learn, however, they will be different from the ordinary "inexperienced hand." These students can take work about June 10 and can continue until about September 15.

3. Students experienced in farm work who desire places for about the same period as above in order to earn money to enable them to continue their studies at college. They will possess technical knowledge of certain kinds of farming and should prove much more efficient than the ordinary "experienced hand."

4. At the close of the college year there are usually a number of students who have finished their studies and desire positions on farms as superintendents or managers.

Farmers who think they could use any of these four classes of help this summer are invited to write the Department of Farm Practice, College of Agriculture, Ithaca, New York, stating which class they can employ and the kind of farming in which they are engaged. We have demands from students for a great variety of positions, so that we desire to hear from general farmers and from poultry, fruit, dairy, nursery, and other farmers. As the students will be leaving soon after the first of June, farmers should make their wishes known at an early date.

EMPLOYMENT OF VEGETABLE-GARDENERS

A number of students desire places for the summer where they may get experience in vegetable production. A few of these men have had no farm experience; most of them have been brought up or have worked on general farms; some have had considerable experience on vegetable farms. The men may be employed on the same basis as other help. Prospective employers will be furnished in each case with full information regarding men under consideration and will be put in touch with former employers of such men whenever possible. Further information may be obtained from the Department of Horticulture, Cornell University, Ithaca, New York.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 328—HOP MILDEW

Hop mildew is an old and well-known disease in England and on the Continent of Europe. It had not been destructive in the United States until an outbreak occurred in central New York in 1909. All aerial parts of the hop plant are affected by the disease. On the leaves it appears as white, powdery spots circular in outline. The flowering catkins, or burs, become covered with the white, moldy growth and fail to hop out. On nearly mature hops the whitish growth is not so apparent, but a premature reddening or browning of the clusters is evidence of the presence of the disease.

The fungus to which the disease is due, known technically as *Sphaerotheca humuli*, winters on fallen debris in a specially developed, small, thick-walled, black capsule, or perithecium, which contains eight oval spores. Shortly after the plants come up in the spring these winter spores are ejected into the air. They are exceedingly small and light and are easily carried by the wind to the foliage of the hop. Many lodge in unfavorable places and perish.

Moisture, warmth, and a period of several hours are essential for the germination of these spores, the most favorable conditions being afforded by rain followed by fog and mist. The spore germinates, sends suckers from the germ-tube into the tissue of the hop plant for nourishment, increases in length, branches in all directions, and in ten days or two weeks becomes visible to the naked eye. From this weft of fungus mycelium upright stalks develop, which bear about eight summer spores. Over two million such spores may be developed on a square inch of leaf surface. These provide for wide distribution.

Since the fungus is a surface infestation the disease may be cured even after it has made its appearance. This can be done best by dusting dry sulfur on the plants. Flowers of sulfur, or else finely powdered flour sulfur 95 per cent or more of which will pass a 200-mesh sieve, should be used.

At least four dustings should be made, as follows: (1) when the shoots start up the strings; (2) when the vines are well up the poles; (3) in the blossom; (4) two weeks later. Other applications may prove necessary and can be applied at any time up to the week of picking. Forty to fifty pounds of dust should be applied each time.

CIRCULAR NO. 15—LEGUME INOCULATION

A large number of inquiries concerning the inoculation of leguminous crops have been received by the Department of Plant Physiology. These inquiries have made it seem advisable to publish a short circular in which information on the subject of legume inoculation is presented. The following phases of the subject are discussed: differences between leguminous crops and other crops; production of nodules due to bacteria; legumes with nodules enabled to use atmospheric nitrogen; amount of atmospheric nitrogen used; what inoculation is; how to inoculate; cross-inoculation; when inoculation is needed. The two methods of inoculation—the soil method and the pure-culture method—are described in some detail. The question as to whether or not a crop needs inoculation is taken up and a practical way of ascertaining this point with reference to any particular crop is suggested. A brief explanation is offered as to why inoculation sometimes fails of its purpose.

READING-COURSE LESSONS

COMPUTING RATIONS FOR FARM ANIMALS

(Lesson for the Farm Course)

This lesson has been prepared with a view of giving information concerning the principles and practice of feeding animals. In the first part of the lesson the requirements of the animal body are discussed and the manner in which the food fulfills these requirements is described. A discussion of the composition of foods follows. In Table 1 is given the total and digestible composition of all the common foods used for animals. The usual method of computing a ration is explained. The daily food requirements of all classes of farm animals are given in Table 2. A shorter and easier method of computing rations by means of tables 2 and 3 is then explained. In the last part of the lesson illustrative rations are computed for horses, swine, and dairy cows.

In the census of 1900 it was seen that the average dairy cow in the State of New York produced in one year 4,410 pounds of milk. If this cow is fed 10 pounds of hay, 40 pounds of silage, and 8 pounds of grain per day for six months, the above quantity of milk will not pay for her food and pasturage and return enough besides to pay for the labor in taking care of her, the cost of housing, and the interest on the money invested in her. This low production and loss in keeping is due partly to lack of knowledge of the correct practice in feeding. It is the purpose of this lesson on stock-feeding to set forth a practical method of computing rations for stock.

Because of the large demand for information on stock-feeding this lesson has been reprinted by the Cornell University Agricultural Experiment Station as Bulletin 321.

COST OF FOOD

(Lesson for the Farm Home Course)

The lesson on the cost of food discusses economy in purchasing and the real cost of food. The price paid for food is not to be measured solely in terms of dollars and cents; the ability of the food to maintain the body in a high state of efficiency must also be considered. The lesson shows the knowledge necessary in order to insure proper planning of the dietary. An outline of body needs and food functions is given, indicating in a brief way some of the food problems that the housekeeper faces and showing one method of judging the value of food. Tables show the method of estimating the food requirements for young and middle-aged men and women and the method of comparing the cost of some common foods as sources of energy, protein, and mineral matter.

THE FLOWER GARDEN

(Lesson for the Farm Home Course)

The main planting of any place should be of trees and shrubs. Flowers may be used as decoration. Where to plant flowers is really more important than what to plant. The flower garden is not primarily for the purpose of decorating the yard, but of growing flowers for their own sake. The flower garden, therefore, should be at one side of the house or at the rear, for it is not wise to spoil a good lawn even with flowers.

Every country flower garden should contain many of the so-called "old-fashioned" perennials. In the selection of the kinds of annuals the personal preference of the grower must be the guide. Annual flowers have an advantage over perennials in that they appeal strongly to the desire for experiment.

Planning and location of the garden, preparation of the soil, and plant cultivation are treated in the lesson. Some common flowering plants are mentioned, with specific advice concerning their treatment.

HOTBED CONSTRUCTION AND MANAGEMENT

(Lesson for the Farm Course)

The advantages of a good hotbed to both the home and the commercial vegetable-grower are set forth in this lesson. Practical methods of constructing hotbeds of wood, brick, concrete, stone, or combinations of these materials are discussed. Directions are given for the necessary preparation of the material for filling the beds and the preparation of the beds for the growing of plants. The management of hotbeds, including ventilation, watering, and other care, is considered. A definite system of planting a hotbed for the home garden is suggested, accompanied by a plan.

CULTURE OF RED AND BLACK RASPBERRIES AND OF PURPLE-CANE VARIETIES

(Lesson for the Farm Course)

This lesson was prepared by the Department of Pomology and is the result of a survey of small fruits in New York State which was made by the Department. The purpose of the lesson is to present the method of propagation and culture of these fruits according to the latest information. The lesson is adapted to the needs of the grower who raises the fruits on a commercial scale, and of the amateur who is interested in them from the point of view of the home garden.

The topics covered by the lesson are varieties, soils, propagation, pruning, spraying, harvesting, and marketing. The information on these topics is gathered mainly from the study of commercial patches in the State. A careful review of the literature of the subject has also been made and the information gathered therefrom is included in the lesson.

HOUSEHOLD BACTERIOLOGY

(Lesson for the Farm Home Course)

The lesson on household bacteriology is a study of bacteria, molds, and yeasts in their relation to housekeeping. It discusses the method by which these organisms find their way into the household; the practical application of the principles of bacteriology in the ordinary routine of life; and the value of germs in the economy of nature in their relation to butter- and cheese-making and to bread-making, and in the manufacture of linen, tanning of leather, and the like. Methods of destroying bacteria are given: by means of heat, fresh air, sunshine, drying, cold-storage, preserving food, and canning food. Bacteria in their relation to milk are discussed at some length.

PRINCIPLES AND METHODS OF PLANT-BREEDING

(Lesson for the Farm Course)

A Reading-Course Lesson treating the subject of plant-breeding will be issued on April 15. This lesson considers the fundamental principles and methods of the improvement of plants by breeding. The behavior of plants when crosses are made is explained, according to the law first discovered and formulated by Gregor Mendel. The importance of the search for desirable variations of plants is emphasized and the different methods of selection are discussed. Methods are explained, by means of which the breeder can measure the progress of his work.

It is not the purpose of this lesson to discuss the methods of breeding specific crops, but rather to discuss the general principles underlying all breeding operations. The special work with different crops will be taken up in later lessons.

CORNELL STUDY CLUBS

Often several persons in a community desire to undertake reading that will help them conduct their farming operations to better advantage. Readers who have found the lessons of the Reading-Course to be of assistance to them may invite others to join the course. The demand for Reading-Course lessons has increased rapidly during the past year. In a number of communities, study clubs have been formed. If Reading-Course lessons can be studied in a group there is added interest and better opportunity for self-expression, resulting often in mutual helpfulness among members of the group.

Such study clubs may include men, women, and young persons, and may have social features as part of the programs for the meetings. The two Cornell Reading-Courses—the course for the farm and the course for the farm home—provide lessons of particular interest to both men and women. Study clubs may confine themselves to lessons in either course; or, if one club is composed of both men and women, the lessons in the two courses may be alternated, or two separate groups may be formed holding part of the program in common.

Whenever desired, study clubs may be conducted in connection with the educational work of granges, churches, schools, and local agricultural societies.

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SUMMER SCHOOL IN AGRICULTURE

The Third Annual Summer School in Agriculture at Cornell University will begin on Monday, July 7, and close on Friday, August 15, 1913. The full announcement may be had on application to A. R. Mann, Secretary, College of Agriculture, Cornell University, Ithaca, New York.

Object.—The primary object of the Summer School in Agriculture is to further agricultural education by aiding those engaged in it. The courses are arranged to meet the needs of the following classes:

(1) Persons who desire to teach agriculture, nature-study, and home economics, or who desire to fit themselves to supervise such instruction.

(2) Persons who desire to pursue investigations in agriculture. Some of the courses are advanced, and therefore suited for specialists who wish to pursue their individual study. The facilities of the College are at the disposal of persons desiring to engage in special investigations.

(3) College students in Cornell and other universities who wish to use part of the summer vacation for additional study. In the case of graduates some of the work offered may be counted toward an advanced degree.

(4) Students entering the University who desire to secure surplus credits at entrance, and thereby to shorten their course.

To meet these several needs the courses have been arranged in the following three groups:

I. For teachers and others engaged in elementary school work.—In this group is offered lecture, recitation, conference, laboratory, and field work in nature-study, elementary agriculture, school gardening, and school methods. While the courses are not restricted to the requirements of the New York State Syllabus for Elementary Schools, these requirements will be included and covered.

II. For teachers and others engaged in high school work.—In this group will be given the subject-matter in agriculture required in high schools and by the State Syllabus, together with special attention to methods of presentation. Conferences will be provided for the discussion of classroom problems. The courses are intended especially for those wishing to start in this field and desiring acquaintance with the general field of agriculture. High-school teachers having considerable preparation in agriculture may find it more advantageous to take the more specialized courses in group III; and teachers registering in group II will have time for some additional work in groups I and III.

III. For teachers desiring specialized instruction, for college students, and for those desiring to pursue investigations.—Courses are offered in agricultural chemistry, household chemistry, soils, biology, botany, farm crops, fruit-growing, plant pathology, plant physiology, entomology, forestry, dairy industry, animal husbandry, poultry husbandry, home economics, and meteorology.

Admission.—There is no examination for admission to the Summer School in Agriculture, but applicants should have completed a high school course or the equivalent. Each person must satisfy the instructor in charge of any course that he is qualified to pursue the work of the course. Any duly registered student in the Summer School in Agriculture may visit other classes than those for which he is specifically registered; but admission to the classrooms is restricted to students who are duly registered in the Summer School.

Tuition in the Summer School in Agriculture is free to residents of New York State and to students registering in the Graduate School in Cornell University and taking postgraduate work in agriculture. Non-residents will be charged a tuition fee of $30, whether one subject or more be taken.

Certificates.—University credit is allowed for most of the courses offered. Students in the Summer School not regularly matriculated in the University may receive certificates of attendance and of work satisfactorily performed.

Special features.—In addition to the regular classroom work, there will be evening lectures on topics of general interest throughout the school. Musical recitals will be given on Tuesday and Thursday evenings in the Sage Chapel. The special evening lectures arranged for the University Summer Session are open to all students in the Summer School in Agriculture. The University Library and the libraries of the College of Agriculture will be open throughout the period of the School.

Outside the formal courses, the students will have opportunity to consult more than one hundred experts in the College of Agriculture, representing practically all the great lines of country-life work. It is designed to make special arrangements whereby teachers and others may have private conferences with members of the staff for the purpose of receiving aid in their personal problems. To many persons this feature may be worth more than the regular class work.

COURSES OF INSTRUCTION

In all the courses, laboratory and field work supplement the lectures. Emphasis is laid on individual contact and practice, and the greenhouses, gardens, and farms will be used. Ithaca, in the midst of a farming region, is particularly well situated for field work.

General Nature-Study.—The field and laboratory work will include individual observations concerning the life histories and habits of various types of wild and domesticated animals and plants. Special attention will be given to the honeybee and other garden insects, together with their relations to the common garden plants. The lectures, in addition to supplementing and elucidating the field and laboratory work, will present methods for the construction and maintenance of breeding-cages and aquaria, and the literature of nature-study.

Natural History of the Farm.—This is primarily a field course, treating principally of the wild inhabitants of the fields, woods, marshes, and streams of the farm. Wild organisms will be compared with domesticated or cultivated ones and the availability of certain wild forms for cultivation will be pointed out. The following topics, among others, will be studied: wild fruits, wild roots, wild cereals, deciduous trees, evergreens, pasture plants and their fitness for pasture conditions, wild birds, wild mammals, and fishes and other inhabitants of the farm stream. Each student will be required to do a considerable part of the work individually.

Agriculture for Elementary Schools.—Lectures, laboratory practice, and discussions on subject-matter of agriculture for elementary schools, methods of teaching, and correlation of agriculture with other subjects.

The School Garden.—This course is designed for teachers in elementary grades. Some of the educational possibilities in gardening will be presented and methods given for conducting the work in rural, village, and city schools. There will be discussions of garden plans and methods in connection with a garden prepared for the demonstration of desirable school work in this subject. Home gardens, experimental gardens, window-boxes, and simple plant study will be considered.

Practical Gardening for Teachers.—Lectures, laboratories, and conferences dealing with the school garden. The site, the equipment, the soil and its improvement, planning the garden, seed and seed-sowing, other methods of plant propagation, plants and plant-growing, transplanting, cultivating, watering, pests and pest control, harvesting; the plants of the garden, their habits, requirements, and culture. In the laboratory work, attention will be given to methods of teaching garden operations as well as to the operations themselves.

The School.—This course will suggest methods of instruction in elementary agriculture and nature-study, taking as a basis the work outlined in the New York State Syllabus for 1913-1914. Simple apparatus to be used in teaching country-life subjects will be shown and discussed. Other subjects for lectures and discussions will be as follows: field work; natural history collections; neighborhood studies; the school and the home; agricultural contests; the country fair; small school exhibits; additions to the school library; the school grounds; Arbor Day; Corn Day; and similar topics of interest to grade teachers, training-class teachers, district superintendents, and all persons interested in introducing country-life subjects into rural schools.

Agriculture for High Schools.—Lectures, laboratory practice, and discussions on agriculture for high schools. Four of the laboratory periods will ordinarily be devoted to the study of some of the more important principles of agriculture. One laboratory period will be devoted to a seminar for discussion of problems that arise in teaching agriculture. Throughout the course, methods of instruction will be considered along with subject-matter.

Courses in Education.—The following courses in education, description of which will be found in the announcement of the University Summer Session, are open to students registered in the Summer School in Agriculture on the payment of thirty dollars tuition charge: A, Principles of Education; B, History of Education; C, Educational Psychology; E, Mental and Physical Tests of School Children; F, Elementary Education; G, School Organization, Administration, Supervision, and Management; H, Industrial Education.

General Biology.—This is an elementary course designed to acquaint the general student and the prospective teacher with the principal ideas of biology through selected practical studies of the phenomena on which biological principles are based. The chief types of both the plant and animal series are studied in logical sequence, particular attention being paid in both lecture and laboratory to such topics as the interdependence of organisms, the simpler organisms, organization and phylogeny, heredity and variation, natural selection and adaptation, segregation and mutation, the life cycle, metamorphosis and regeneration, and the responsive life of organisms.

Principles and Practice of Feeding Animals.—The general principles of animal nutrition, based on Jordan's "Principles of Human Nutrition" as a text. The discussion of these principles will occupy most of the time given to lectures. The practice of feeding animals, based on Henry's "Feeds and Feeding" as a text. The discussion of the practice of feeding horses, cattle, sheep, and swine will occupy most of the time given to laboratory work; the study of feeding standards; the study of about forty home-grown and commercial feeds; the formulation of rations, etc.

Principles of Animal Breeding, and Elementary Judging.—A general discussion of the principles of heredity as applied to the breeding of animals, with a study of animal form; origin and formation of breeds; crossing and grading, with an outline of the methods of registration and the study of records and pedigrees. Demonstrations, essays, and reports will be required in addition to the lectures. The laboratory work will give actual contact with animals, and methods of scoring and judging. Types and several breeds, particularly of dairy cattle, will be illustrated.

Milk Composition and Tests.—The topics considered are the secretion and composition of milk, sampling, the use of the lactometer, the Babcock test for fat in milk, cream, and other dairy products, acid tests, moisture test, salt test, tests for preservatives and adulterations.

Dairy Industry.—This is a general course in dairy work covering the outline as given in the State Syllabus. This course should be of value to teachers of dairy work in high schools. The course includes lectures and laboratory work on the following topics: nature of bacteria and their relation to dairy products; sources of bacterial contamination of milk and methods of prevention; pasteurization; use of bacteria starters; the Babcock test for fat in milk and milk products; the lactometer and its use; acid test; sampling; composition of milk; milk preservatives and adulterations; standardization of milk; use of score cards for dairy farms and dairy products; dairy buildings, equipment, and utensils; handling of market milk; action of rennet; making of cottage cheese.

Poultry Care and Management.—Subjects to be discussed at the lectures include incubating and brooding, principles of poultry-breeding, the selection and business organization of the poultry farm.

Feeding Poultry.—Subjects to be discussed at the lectures are anatomy, physiology of reproduction and digestion, principles and practice of feeding for egg-production, fattening, and rearing. The subjects to be presented in laboratories are anatomy of poultry, study of the egg, study of feeds, making rations.

The Breeds, Judging, and Poultry-House Construction.—A discussion of the general characteristics of the breeds of poultry; nomenclature; types; feather markings; judging for constitutional vigor, utility, and standard points; principles of poultry-house construction and design; building materials; building construction; laying out foundations; concrete construction; estimates; visits to poultry buildings.

Marketing Poultry and Poultry Products.—The subjects to be discussed at the lectures and applied at the laboratories are cleaning, testing, grading, packing, and marketing eggs; killing, picking, packing, and marketing poultry; judging eggs and dressed poultry; preservation and storage of eggs and poultry;

preparation of poultry for the table, including shaping, drawing, trussing, deboning, and carving.

General Entomology.—An introductory course dealing with the biology, habits, economic importance, and relationships of insects.

Laboratory Course in the Morphology and Classification of Insects.—Study of the external anatomy of typical insect forms; the collecting, mounting, and classifying of representatives of all the orders and the chief families of insects. While the systematic work will give a general survey of the field, each student may direct his energies toward the collecting of any group in which he is particularly interested.

Morphology and Development of Insects.—A lecture course designed for advanced students in entomology and those specializing in zoology.

Insects and Disease.—A consideration of insects and their allies as the cause and, more especially, as the conveyors and disseminators of diseases of man and the higher animals. The object of the course is to afford a general survey of the field and to put the student in touch with the discoveries and theories which in very recent years have become important factors in the fight for public health and in the case of certain diseases have completely revolutionized the methods of control. There will be abundant opportunity for laboratory work for those desiring special study along these lines.

Research in Entomology.—Opportunities will be offered for advanced work and research in various phases of entomology. Properly qualified students registered as candidates for advanced degrees may elect thesis work under any member of the Department who is in residence during the summer.

Care of the Woodlot.—A course dealing with the woodlot as deserving and repaying proper care, such as is given the other crops on the farm. Topics to be considered include forest planting, sowing, and nursery work; reproducing the forest without planting or sowing; care of the crop during growth, including thinning; protection from fire and other enemies; measuring the amount of timber in the woodlot.

Forests and Forestry.—A course designed primarily for teachers. The topics to be considered will include the aims and general methods of forestry; the usefulness of forests to the nation, including the influences exerted by forests on climate and stream-flow; brief description of the principal forest regions of the United States; the life history of a forest; identification of the common trees occurring in the northeastern United States; what is being done in forestry by the nation, by States, and by other agents; forestry in Europe.

Farm Crops.—A course covering the principal cereals and forage crops. The subject-matter presented will be selected especially to meet the needs of teachers of agriculture in high schools.

General Fruit-growing.—A study of the methods of propagation and early care of commercial fruits, including the growing of seedlings, cuttings, and layers; the principles of budding, grafting, pruning, and planting; the soils, varieties, and planting plans for the orchard; the cultivation, cover-crops, fertilization, spraying, pruning, and thinning, as practiced in orchard management; the picking, grading, packing, storing, and marketing of fruit. This course considers the apple, pear, quince, cherry, plum, apricot, peach, and the nuts.

Small Fruits.—A course which considers the grape, raspberry, blackberry, dewberry, currant, gooseberry, and strawberry. The topics discussed are soils, varieties, propagation, planting, culture, picking, grading, packing, and marketing.

Advanced Pomology.—The course includes a comprehensive study of varieties; the judging of fruits; the preparation of planting and working plans; a study of the character and botanical relationships of the fruits of the United States. Each student is required to collect and mount a number of varieties and species. A trip to Geneva will occupy one afternoon or a Saturday sometime during the course.

Meteorology and Climatology.—This course is designed to meet the needs of teachers of physical geography and other persons desiring a general knowledge of the subject. The course will offer suggestions as to subjects of meteorological study that come within the scope of facilities afforded by public schools and as to where and how meteorological and climatological data may be obtained for school use; it will acquaint the student with the general circulation of the atmosphere; the development, progression, and attending conditions of cyclones, hurricanes, tornadoes, and special storms; the construction of weather maps and climatological charts; practical weather forecasting from weather maps and from local observations; use and care of meteorological instruments; general and special climatology and its relation to agriculture. Special attention will be given to the practical application of the principles of meteorology as exemplified by the work of the United States Weather Bureau and other similar organizations.

Plant Pathology.—A fundamental course in plant pathology treating of the common diseases of cultivated plants—their nature, cause, and control. It is a prerequisite for all other courses in plant pathology.

Identification of Mushrooms and Disease-Inducing Fungi.—Especially designed for teachers who desire a working knowledge of the common mushrooms and disease-inducing fungi that occur in this region. This work will consist very largely of collecting trips for a part of the morning, followed by laboratory study and identification of the material collected. Teachers will find the facts and material thus collected of special service in nature-study teaching and in the teaching of agriculture in high schools.

Structural and Physiological Botany.—A course primarily for teachers of agriculture. It will consider the external and internal structure of plants in relation to function. The topics include, among others, absorption, conduction, water loss, mineral nutrition, synthesis of food, digestion, respiration, growth and reproduction, and the organs and tissues concerned in the processes.

General Plant Physiology.—Lectures, recitations, laboratory work, reports, and occasional field studies. Topics include absorption, conduction, transpiration, metabolism, relation to environment, growth, reproduction, and propagative processes.

Special Problems in Plant Physiology.—Special work in certain phases of physiology, including ecology and fermentation. Admission to work and hours arranged only by appointment.

Principles of Soil Management.—A comprehensive course in soils, dealing with their fundamental physical, chemical, and biological properties. Particular attention is given to soil management in relation to crop production. The laboratory is supplemented and correlated with the lecture work by demonstrations and short lectures.

Manures and Fertilizers.—This course deals with the composition, handling, and use of barnyard and green manures, and the utilization of commercial fertilizers and soil amendments. A brief study of experimental work will be a phase of the lectures.

Soils.—A practical, fundamental course in soils. The subject will be handled with special reference to the needs of those expecting to teach soils in secondary schools. The lectures will include a discussion of the formation and classification of soils, tilth, soil moisture, soil biology, soil amendments, manures and fertilizers, and practical soil management. The round-table once a week will give opportunity for questions and practical discussions as to methods of demonstration.

Agricultural Chemistry.—General lecture, recitation, and laboratory courses treating of the relations of chemistry to agriculture. The following are among the subjects discussed: the chemical composition of agricultural plants and plant by-products; the chemical composition of soils; some chemical relations between the organic and the inorganic matter of soils; the sources, preparation, and manufacture of the materials used in fertilizers; the chemical relations of lime to soils; the chemistry of insecticides and fungicides.

Household Chemistry.—These courses are designed especially for students in home economics. They treat of the chemistry of foods, beverages, baking chemicals, preservatives, and detergents.

Foods.—A course for establishing a fundamental knowledge of foods. The lectures will include a discussion of the sources, composition, and characteristics of foodstuffs; principles governing the selection of foods and methods of preparing them; food preparation and preservation; table-setting and serving; comparative values and costs of various foods. The laboratory work will follow the lectures closely and will consist of experiments in determining the characteristics of foodstuffs as these relate to the preparation of food and to practical problems of cookery.

Human Nutrition.—This course will include discussion of the fundamental principles of nutrition as these apply to the human being; the practical means of applying scientific principles in planning dietaries; special problems of nutrition, as the feeding of infants. The laboratory work will consist of exercises in determining the comparative cost and nutritive value of various foods; in planning and judging various types of dietaries; in preparing typical meals. Open only to students who have had the course in foods or its equivalent.

Household Management.—The course is both theoretical and practical. Lectures are on division of income, household accounts, factors in cost of living from the housekeeper's standpoint, domestic service, household equipment, and labor-saving. Laboratory will be experimental work in cleaning, use of equipment, and general management of the house.

Household Sanitation.—Household bacteriology; cleanliness of soil, air, water, food; disposal of waste; insect pests, infection, immunity, methods of disinfection; good housekeeping in relation to public health; healthful living to promote efficiency; physical exercise and rest.

Extension in Home Economics.—Principles of extension work with special reference to rural communities; organization; material to be presented; manner of presentation; speaking; writing. Practice problems in rural communities.

Sewing and Millinery.—A course designed for those who are to teach in the public schools. It involves a study of the economic standards for the production and selection of clothing; hygiene of clothing; principles of art in relation to dress; instruction in drafting, cutting, and plain and machine sewing.

School Methods in Home Economics.—Relation of home economics to education; place of home economics in the school curriculum; preparation for teaching; relation of home economics to physical and social sciences; art; literature of home economics; method of presentation; equipment; relation to life of the community.

SCHOOL FOR LEADERSHIP IN COUNTRY LIFE

For a number of years the College of Agriculture was urged to establish a school for the training of social workers in rural communities. In response to this demand there have been held two training conferences, last summer and the summer before. The success of these conferences was such that it was determined to establish a School for Leadership in Country Life as a regular part of the work of the College.

Plans have practically been completed for the forthcoming School for Leadership, which will be held at the College of Agriculture from June 24 to July 4, 1913, immediately preceding the Summer School in Agriculture. This time has been chosen as the one most convenient to rural workers.

Admission.—The school is open to all persons who are interested, and more especially to those who occupy positions of leadership and influence in the open country. Special invitation is given to rural ministers, secretaries of rural Young Men's and Young Women's Christian Associations, officers of men's brotherhoods, boy scout masters, school principals and teachers, editors, officers of granges, institute lecturers, and other active rural workers.

Because of the lines of work that will be represented by those present and the fact that those in attendance will all be active rural workers, the opportunity for personal discussions will be one of the most attractive features of the conference. The round-tables will take advantage of this opportunity.

The courses.—The work will be graded so as to meet the needs of both first- and second-year students. After this year, provision will be made for more advanced courses. The heaviest work will come in the forenoons.

1. First-year courses. For first-year students, courses will be offered in the rural mind; the study of human nature; the psychology of leadership; rural economic conditions; economic ideals of the countryman; principles of rural sociology; rural social conditions; and a special course in leadership for the farm woman and the farm girl.

2. Second-year courses. The second-year courses will include study of business organization and cooperation; economic thrift and wastefulness of the farmer and of rural social institutions; social function of rural institutions; cooperation and federation of rural social agencies; the pedagogy of leadership; group organization; rural health; rural play and recreation; rural personal ideals; the rural family; the farm woman; the rural survey; the community program; education extension in agriculture.

The afternoon periods will be free from required work. Definite provision will be made for play and games, field trips, tramps, inspection of campus, college, and farms, etc. Opportunity will be provided for demonstrations in rural recreation, for informal group conferences, personal consultation with members of the staff, and the like. The members of the staff will be available for consultation at all times during the school.

The evening periods will combine entertainment features with illustrated addresses on leading country-life questions and institutions.

Exhibits will be a special feature—exhibits to illustrate the subject-matter of the courses and other matters of general interest, as types of bulletins, reading and correspondence courses, farm journals, bookshelf, rural recreation equipment, survey forms, and the like.

Expenses.—There will be no registration fee, but persons in attendance will pay their own traveling and entertainment expenses. The cost of board and room in Ithaca runs from $5.50 a week upward. Tents will be erected in the grove adjoining the college grounds for the housing of persons in attendance.

The place.—Ithaca is situated in Tompkins county at the head of Cayuga Lake. It is in the midst of a farming region. The lakes, gorges, ravines, drives, woods, and other natural features make it a delightful vacation spot. The sixty-acre playground of Cornell University is adjacent to the College of Agriculture.

Ithaca is reached by either the Lehigh Valley or the Lackawanna Railroad. By the latter a branch leaves the main line at Owego. Through trains run from New York and Buffalo on the Lehigh Valley and through sleeping-cars run daily from New York on both roads.

Information.—For complete programs and detailed information concerning the conference and arrangements for living while at Ithaca, address A. R. Mann, Secretary, College of Agriculture, Cornell University, Ithaca, New York.

ANNOUNCER
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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

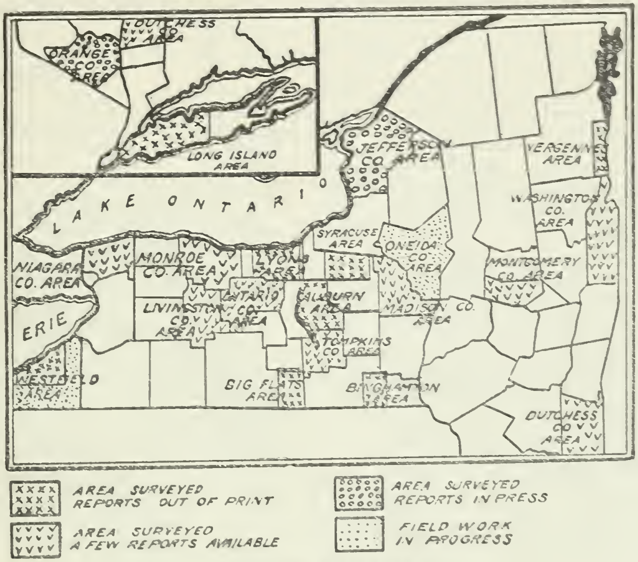
Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

SUMMER EMPLOYMENT

Attention is again called to the fact that a considerable number of students at the College of Agriculture desire to find summer employment on farms. Some of them are without farm experience while others are fully qualified to assume the management of places, and all are working at agriculture because they intend to make farming their life work. The former class are seeking experience and desire appointments on well-managed farms run by fair-dealing men who will aid them in obtaining the training that they need. They expect to be paid just what they are actually worth.

The State College of Agriculture must look to the farmers of the State to aid in the education of the young men who are to be our future farmers, and it desires to make known the demands that are now upon it. Farmers desiring student help for the summer should make their wants known immediately, as the students will have scattered by June 15. Correspondence stating the kind of help desired, the approximate salary, the size and location of the farm, and the nature of the farming, should be addressed to the Department of Farm Practice, College of Agriculture, Ithaca, New York. The students can take work about June 10 and can continue until about September 15, when they must return to college. We have demands from students for a great variety of positions, so that we desire to hear from general farmers and from poultry, fruit, dairy, nursery, vegetable and other farmers.



SOIL SURVEY MAP OF NEW YORK STATE

SOIL SURVEYS IN NEW YORK STATE

(Department of Soil Technology)

A soil survey will be conducted in Oneida and Chautauqua counties during the coming summer, beginning about the first of June. A survey of Oneida county was begun last year and the field work will be completed this season. The work will be in charge of Earl T. Maxon.

The northwestern part of Chautauqua county was surveyed in 1901 and the survey was published, the section being designated as the Westfield Area. This survey will be revised and included with the report on the entire county. The survey will be made by Tracy M. Morrison and C. C. Engle. It is expected that the field work in the county will be completed by November.

The outline map of New York presented herewith shows the progress of the soil survey of the State and the location of the areas that have been taken up. The field work is conducted cooperatively by the New York State College of Agriculture and the United States Bureau of Soils. It requires four to six months for two men to make the necessary field investigations in a county. These men examine the soils and prepare a map showing the location of each kind of soil. A report is prepared describing the character and agricultural value of each type of soil, the general geology, topography, drainage, and climate of the area, and, briefly, its agricultural development and present status. The map and the report are published together and have been issued only by the United

States Department of Agriculture. Consequently the College has no copies of the soil survey reports for distribution, except as a small number may be turned over to it by those to whom the distribution is regularly delegated by Congress. The Congressman *in whose district the survey is located* is assigned two thousand copies. Each Senator is assigned five hundred copies, and the United States Department of Agriculture is assigned one thousand copies. The supply of several of the older reports is exhausted. The status of the supply of the reports and the progress of the survey of each area are indicated on the accompanying map. Twelve to eighteen months have usually been required for the publication of the map and report of a survey after the completion of the field work The published reports not otherwise available can usually be consulted in the Field Operations of the United States Bureau of Soils, which may be found in the larger public libraries.

SCORING OF DAIRY PRODUCTS

(Department of Dairy Industry)

The Department of Dairy Industry will score samples of butter, cheese, and milk once each month. The purpose of this contest is to enable dairymen in New York State to send samples of their product to the College to be scored by expert judges. A butter-maker or a cheese-maker usually has little opportunity to compare his product with the output of other factories, and oftentimes has no opportunity to know how his product compares in quality with the requirements of the markets. Investigation has shown that in the State there are many manufacturers who are receiving a premium over New York quotations for their products because these products are of good quality and the makers are aware of their real value. There are, however, many manufacturers who are not receiving as good prices as they might, sometimes because the quality of the product is not what it should be and sometimes because the maker is dependent on reports from the market without having an opportunity to know the real value of his product.

Any person desiring to do so may send a sample of his product to the Department of Dairy Industry once each month, and receive a report giving in detail the score of his product together with suggestions for improvement when such are desirable. Such reports have been, in the past, of much value to the men who have taken part in the scoring contests. This is evidenced by the fact that the man who took both the gold and the silver medal for butter at the State Fair in 1911 was regularly sending samples of his butter to the Department to be scored. He states that his success was due directly to the suggestions that he received as a result of the scoring contests. Many butter- and cheese-makers could receive much better prices for their output if they knew the real quality of their products and could put out a uniform article of high quality. This would mean greater success to the manufacturers and better prices to the patrons.

It is desirable that samples be sent regularly each month; they can be sent in for one or more months without continuing throughout the entire season, however, if it is so desired. Diplomas are given to those persons sending samples regularly throughout the year, who maintain a certain average score for the year.

Further information regarding the scoring, together with instructions for shipment of the products, can be obtained by writing to the Department of Dairy Industry, New York State College of Agriculture, Ithaca, New York.

EXHIBITS FOR TOWN AND COUNTY FAIRS

(Extension Department)

For the past several years it has been the policy of the College of Agriculture to send educational exhibits to town and county fairs whenever the demand has arisen. For the coming season the same policy will be carried out, in so far as the demands can be met and the necessary arrangements can be made. These educational exhibits are placed only on request, and in case the local organization concerned will agree to pay one half of the transportation charges on the exhibit material to and from the fair and one half of the traveling and hotel expenses of the one or two specialists required to take charge of the exhibit. These specialists attend the exhibits in order to explain them and to take up with visitors any questions pertaining to them. As the number of fairs to which the College can send exhibits will be limited, the request for these should be made as early as possible.

Some of the exhibits that will be available are: Farm crops exhibit, dealing with some of the more important problems related to the cultivation of the principal farm crops of the State; forestry exhibit, consisting of photographs, samples of seeds of common trees, wood specimens showing the structure, texture, and grain of wood, sections of trees showing rate of growth, maps and diagrams illustrating the various methods of forestry work; poultry exhibit, showing models of complete poultry buildings fully equipped as such should be on a farm, models of colony houses, a display of egg records, methods of candling and testing eggs, and the proper way of grading for market; entomology exhibit, showing some of the more common insect pests by photographs, charts, and mounted specimens, together with illustrative material describing methods of control; plant-disease exhibits, illustrating the more common plant diseases, with methods of control; agricultural chemistry exhibit, showing the general chemistry of fertilizers, amendments, forms of lime, vinegar work, and insecticides; animal husbandry exhibit, including samples of feeds, charts and photographs relating to milk propuction, cow records, and the like; soils exhibit, including charts and materials dealing with drainage, lime, and tillage, maps of soil surveys, and charts showing the results of these surveys; dairy exhibit, with equipment and demonstration for the Babcock test, moisture and salt tests for butter, plating milk for bacteria, plates showing clean and dirty milk, and charts showing different methods for the production and handling of clean milk; pomology exhibit, relating to planting, cultivating, harvesting, and marketing of fruit, with special reference to packing; plant-breeding exhibit, showing results and methods of improving crops by breeding.

All communications should be addressed to the Extension Department, College of Agriculture, Ithaca, New York.

COOPERATION WITH POULTRY ASSOCIATIONS AND OTHER ORGANIZATIONS

(Department of Poultry Husbandry)

In so far as the funds of the Department of Poultry Husbandry will permit, arrangements will be made to provide speakers for lectures, demonstrations, and educational exhibits, for visiting farms, and for assisting in the organization and management of poultry shows.

What the College will do

1. Lectures: The Department will provide a speaker, who will give a lecture or a series of lectures, each day during a poultry show or meeting, on the following subjects, from which selection may be made:

Feeding for egg production
Breeding
Rearing chickens
A poultry house for New York State
Importance of constitutional vigor in the breeding of poultry
Poultry troubles and how to avoid them
The preparation of poultry and eggs for market
Marketing poultry and poultry products
The importance of breeding pure-bred poultry
What the New York State College of Agriculture is endeavoring to do for the poultrymen of the State

2. Demonstrations: Demonstrations will be given of the latest methods of killing, picking, and packing poultry; grading eggs; testing eggs; making lice powder and disinfectants; judging fowls for constitutional vigor, exhibition, and productive qualities.

Classes may be formed in advance and materials provided for giving persons practice in each of the above operations.

3. Educational exhibits: A Cornell poultry educational exhibit, occupying thirty or forty lineal feet of wall and table space, will be staged, preferably in the show room. This will consist of models of poultry houses, colony brooder-houses, fattening crates, outdoor feed hopper, catching box, and other convenient poultry appliances; also charts and photographic enlargements showing the methods of instruction and the results of poultry experiments.

4. Farm visits: Between appointments for meetings or shows, a representative of the Department, in so far as time will permit, will visit poultrymen in the vicinity for the purpose of receiving and giving information regarding the selection of stock for breeding purposes, grading eggs, planning and locating buildings, compounding rations, and the like.

5. Organization of poultry associations: The College is prepared to assist in the organization of poultry associations wherever poultry

interests will warrant it. Sample copies of constitution and by-laws, together with programs for meetings, will be provided, and advice in regard to managing poultry-show associations will be given on request.

What the community is expected to do

1. The meeting-place: To furnish a suitable hall near by (not in the show room) for the poultry lectures and demonstrations.

2. The booth: To provide materials and labor for erecting such booth and table room as may be necessary for staging the educational exhibit.

3. Hotel and traveling expenses: To pay one half of the hotel and traveling expenses of the speaker or speakers, and one half of the charges of transporting the exhibits.

4. Advertising: To advertise the event effectively in the catalogue of the association, in the public press, and by such other means as will insure the largest possible attendance.

Who may cooperate

Poultry associations, granges, Young Men's Christian Associations, and other organizations or individuals desiring to cooperate with the Department as above described, are requested to fill out the blank form below and return it promptly, in order that arrangements may be completed, dates scheduled, and the event properly advertised.

Applications will be accepted in the order of the date of their receipt. The persons and exhibits available are not sufficient to meet the demands during the active season—November 1 to April 1. It will be impossible, therefore, for the College to meet all requests, and applications should be made as promptly as possible.

Application for poultry lectures, demonstrations, educational exhibits, farm visits, or assistance in organizing poultry associations, to be filled out and returned promptly to the Department of Poultry Husbandry, New York State College of Agriculture, Ithaca, New York.

Name of poultry association applying..........

Name of club or society applying..........

Name and address of correspondent..........

Date..........

Names and addresses of officers..........

....

Send latest catalogue or premium list, programs of meetings, etc.

Do you wish a Cornell poultry educational exhibit ?..........

Date of exhibit.......... Size of show room..........

(Indicate by sketch where educational exhibit will be placed. The stage or rostrum found in many show rooms is an excellent place for the exhibit.)

Do you wish a speaker at your show or special meeting?..........

Dates for speaking and demonstrations in connection with your show or meeting..........

Name of hall and street number..........

Size of hall..........

Attendance anticipated each day at show..........
at meeting..........

Do you have electrical connections in hall?..........
in show room?..........

Can hall be darkened ?..........

Name express company or companies in your town..........

The expense

The Department endeavors to reduce expense by having its representative travel on mileage. The exhibit is kept as light as is practicable without impairing its efficiency. In so far as it is possible to do so, appointments for meetings and exhibits are arranged in circuits.

The total expense for an educational exhibit, for approximately one week, with a representative in charge who will lecture and demonstrate as above described, will depend on the distance of the meeting from the previous appointment, its duration, and the size of the exhibit desired. Generally it will not exceed fifteen to twenty dollars unless the appointment be in a distant part of the State, in which event it may reach twenty-five to thirty dollars, half of which will be paid by the College. In several instances the total expense of the exhibit has fallen below fifteen dollars.

SUMMER SCHOOL

Attention is again called to the third session of the Summer School in Agriculture, to be held July 7 to August 15, 1913. The courses are arranged to meet the needs of the following classes of persons: (1) Persons who desire to teach agriculture, nature-study, and home economics, or who desire to fit themselves to supervise such instruction; (2) persons who desire to pursue investigations in agriculture; (3) college students who wish to use part of the summer vacation for additional study; (4) students planning to enter the university who desire to secure surplus credits at entrance, and thereby to shorten their courses.

To meet these needs the courses have been arranged in three groups:

1. For teachers and others engaged in elementary school work. In this group is offered lecture, recitation, conference, laboratory, and field work in nature-study, elementary agriculture, school gardening, and school methods.

2. For teachers and others engaged in high school work. In this group will be given the subject-matter in agriculture required in high schools, together with special attention to methods of presentation.

3. For teachers desiring specialized instruction, for college students, and for persons desiring to pursue investigations. Courses are offered in agricultural chemistry, household chemistry, soils, biology, botany, farm crops, fruit-growing, plant pathology, plant physiology, entomology, forestry, dairy industry, animal husbandry, poultry husbandry, home economics, and meteorology.

There is no examination for admission to the Summer School in Agriculture, but applicants should have completed a high-school course or the equivalent. Tuition is free to residents of New York State; nonresidents will be charged a tuition fee of $30, whether one subject or more be taken. Students in the Summer School who are not matriculated in the University may receive certificates of attendance and of work satisfactorily performed.

Complete programs of the Summer School may be had on application to the Secretary, College of Agriculture, Cornell University, Ithaca, New York.

SCHOOL FOR LEADERSHIP IN COUNTRY LIFE

The complete printed program of the School for Leadership in Country Life, to be held at the College of Agriculture June 24 to July 4, inclusive, is available and may be had on application to the Secretary, College of Agriculture, Ithaca, New York. The purpose of the School, as has already been announced, is to provide a course of training for all classes of rural leaders, including especially school superintendents, principals, and teachers, editors, officers of granges, institute lecturers, rural ministers, secretaries of Young Men's and Young Women's Christian Associations, officers of men's brotherhoods, and other persons who occupy positions of influence and leadership in the open country.

The School includes within its scope courses in rural leadership, rural ethics, rural sociology, rural economics, the farm home and the family, leadership for farm women and girls, rural social surveys, community programs, extension teaching in agriculture, rural play, and rural athletics. The lectures and demonstrations are supplemented by a carefully selected and arranged country-life exhibit. Definite provision is made for pastimes and wholesome recreation.

The comfort of those who attend will be well provided for. Completely furnished tents will be pitched in the grove by the side of Beebe lake for the accommodation of those who enjoy camp life. Comfortable rooms in houses near the campus will be available for persons wishing them. Meals can be had at the cafeteria within three minutes walk of the camp. It is very important that persons expecting to attend notify the Secretary in advance, stating whether tent or house accommodations are desired.

PUBLICATIONS

BULLETIN 329 AND CIRCULAR NO. 20—THE FIRE BLIGHT DISEASE IN NURSERY STOCK

The bulletin under consideration treats technically of all phases of fire blight. The organism causing the disease has received particular attention.

The essential practical points developed by the studies recorded in the bulletin have been abstracted and published in the circular.

The characteristic symptoms of the disease as it occurs in the nursery stock are described, the organism causing the disease is described and illustrated, its life history is given in detail, and methods of control based on experience of four years in large blocks of nursery stock are presented.

BULLETIN 330—RESPIRATION OF FRUITS AND GROWING PLANT TISSUES IN CERTAIN GASES, WITH REFERENCE TO VENTILATION AND FRUIT STORAGE

Experiments show that in the ripe fruit of grape, cherry, blackberry, apple, and peach the rate of respiration is extremely rapid, approximating that in actively growing tissues. The three fruits first mentioned above respire as rapidly in the absence as in the presence of oxygen. These are the fruits that deteriorate quickly. Peaches and apples, on the other hand, respire more rapidly in air than in an oxygen-free atmosphere. If deterioration follows increased respiration it might be expected that fruit kept in an atmosphere of either carbon dioxid, nitrogen, or hydrogen should show decreased rate of deterioration, since in these gases respiration is decreased. Apples, however, assume in the absence of oxygen a half-baked condition; peaches become brownish and acquire a bad flavor. The investigations described in the bulletin indicate that "ice-scald" of peaches is due to the accumulation of carbon dioxid by the fruit when kept in paper wrappers. Good ventilation is emphasized as being of prime importance for the proper storage of fruit.

CIRCULAR NO. 19—LATE BLIGHT AND ROT OF POTATOES

This circular has been prepared in order to give potato-growers information concerning the late blight and rot of potatoes. Full descriptions are given of the appearance of the disease on leaves, stems, and tubers. Explanations are made of the manner in which the parasite, a fungus, lives in the tuber over winter, how infection of the vine takes place from the diseased tuber, and how the fungus spores are produced on the under surface of the leaf and are scattered to healthy vines and to young tubers, infecting them.

Specific directions are given for control of this disease, so that no farmer can fail to understand what spray material to use, the quantity necessary, and when and how often to spray.

The circular is illustrated with photographs showing the symptoms of the disease and with drawings showing the relationship of the fungus to the potato plant.

This circular is available to all residents of the State. It will be sent to those persons whose names are on the classified mailing list of the Experiment Station for publications dealing with general farm crops. All others who desire the circular may obtain it by applying to the Mailing Room, College of Agriculture, Ithaca, New York.

HOME-GARDEN PLANNING

(Lesson for the Farm Reading-Course)

This lesson suggests plans for three gardens of different sizes. The amount of seed to order and the cost, the dates of planting, transplanting, and thinning, and cultural directions are given for each plan. The plans suggested have been successfully carried out in practice. The small garden, 25 by 35 feet, is made to include most of the annual vegetables by means of the interplanting of crops and by succession cropping. The largest garden, 110 by 200 feet, is arranged so that practically all cultivation can be done with horse power, as the average farmer can spare but little time for the more intensive methods of gardening as suggested in the other two plans. It might be to the farmer's interest, however, to give a little more time to better gardening, considering that probably twenty-five to forty per cent of the living of his family is derived from the garden. The garden suggested for the farmer does not demand a large amount of time; half an hour to an hour a day of thorough work will keep it in good condition after the preparation and planting are finished.

EXTENSION CIRCULAR NO. 1—A PLAN FOR A RURAL COMMUNITY CENTER

This circular is the direct result of an exhibit by the New York State College of Agriculture at the Fifth National Corn Exposition, held at Columbia, South Carolina, January 27 to February 14, 1913. The exhibit contained a model of a rural community center such as is possible when different community enterprises are established and brought together in a public park or fair ground. The plan for developing a rural community center was fully described in a circular distributed in connection with the exhibit. This circular has been reprinted by the Extension Department as Circular No. 1, and an illustration has been included showing the suggested community center as it appears in miniature.

The plan for a rural community center includes eight elements, certain of which are adapted to almost any community. It is not suggested that the entire plan be put in operation at once, as a community center should develop gradually from local conditions. If a community supports a fair the plan suggests retaining most of the desirable features, eliminating undesirable ones, and adding a number of new elements that will cause the grounds to be utilized much more frequently than are the average fair grounds. The grounds, buildings, and equipments should be used the year round, thus eliminating the great economic waste now sustained in utilizing fair grounds only one week in each year.

The elements in the plan, briefly stated, are as follows:

1. A piece of land about twenty to thirty acres in extent, laid out in somewhat the same way as the usual fair ground but to be used as a public park and to be open at all times.

2. A grove for picnics, summer gatherings, and shelter purposes. If the grove is set out it should include the best ornamental trees.

3. A consolidated or combined elementary- and high-school building in or near the grove.

4. Athletic grounds for local pastimes, for the use of school children, and for county athletic meets.

5. Experiment or demonstration plats.

6. A building that can be heated for year-round meetings and exhibits.

7. Regular fair buildings.

8. Race track, to be used for local rather than professional races.

The first six elements constitute the community center, complete; the last two elements adapt it to the needs of the county fair and are included in order to show the relation of the proposed new elements to an organized county fair. While this center can be developed best apart from the county fair, any one or all of the elements may be incorporated in the established fair; and the fair grounds may be readily modified to conform to this plan. The community-center idea is better adapted to small communities than is the fair, and the suggestion is for such communities.

It is believed that the proposed plan for a rural community center is wholly feasible, and that the time has come when the country fair must be modified along the lines suggested. It is not expected that the plan will be everywhere adopted or that all the features will necessarily be applied in any one place; and it is realized that the plan is incomplete. It is hoped, however, that the suggestions may inspire a movement for the reorganization of the fairs and for the development of efficient rural community centers. Extension Circular No. 1 should be of assistance to fair associations, granges, improvement societies, and persons who are engaged in welfare work in the open country.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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L. H. BAILEY, Director

VOL. 2 **ITHACA, NEW YORK JULY, 1913** **NO. 10**

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

DEPARTMENT OF FLORICULTURE

Teaching and investigation in floriculture had its beginning very early in the history of the present Department of Horticulture. More attention has been given here to this subject than in any other institution. Few students have been graduated from the New York State College of Agriculture who have not had some greenhouse experience, while a number have devoted considerable attention to outdoor flower crops.

The rapid development of fruit-growing, floriculture, and vegetable-growing as distinct occupations has resulted in a demand for men specially trained along a particular line, rather than men broadly trained in the whole subject of horticulture. In order to meet the growing demand for trained florists by providing special courses of instruction, and for the purpose of developing the investigative work, a Department of Floriculture has been organized.

AIMS OF THE DEPARTMENT

The Department of Floriculture has three principal aims : to give instruction at the College; to conduct investigations, field studies, and surveys aiming to help in solving the floricultural problems of commercial florists throughout New York State; and to give information and assistance to intending planters of home and public grounds in the State.

The instruction given at the College is intended to meet the needs of amateur flower-growers; to provide instruction for students in other lines of horticulture who wish to get a knowledge of some of the fundamental principles of floriculture; to train students for teaching and investigative work in floriculture in colleges and experiment stations; and to prepare students for professional work.

EQUIPMENT

The equipment of the Department is divided into two parts : that belonging to the classrooms and offices is on the second floor of the Main Building; and that connected with the forcing-houses and gardens, as well as with the experimental areas, is in the field.

Classrooms and laboratories. Lectures are given in the headquarters of the Department on the second floor of the Main Building. On this floor are lecture rooms, laboratories, and offices.

The larger lecture room, which is provided with a stereopticon, has a seating capacity of one hundred and twenty persons. The smaller lecture room seats thirty-five, besides containing the herbarium. The remainder of the floor is used for offices for the instructing staff. Large display cases lining the corridor are filled with horticultural specimens, tools, and various appliances.

In addition to the large collection of floricultural books in the University Library, the Department is fortunate in possessing the large private library of the late Professor John Craig. This contains three thousand volumes, many of which are on floricultural subjects and are available for the use of advanced students.

Forcing-houses and gardens. The greenhouses completed in 1910, together with the contemplated additions to be erected during the present year, cover an area of about eight thousand square feet. The range consists of a conservatory and propagating house and a house for the culture of roses, carnations, chrysanthemums, sweet peas, and other greenhouse plants. These buildings are used by all classes in floriculture and afford space for advanced and graduate students investigating special problems.

The service building is a two-story structure containing laboratories, an office, and seed storage and tool rooms.

The Department has been assigned twenty acres of land for its large collections of peonies, irises, perennial phlox, roses, sweet peas, gladioli, and miscellaneous annual and perennial flowers. These collections afford valuable material for study and numerous problems for investigation.

Aside from ordinary equipment, the garden herbarium, with more than twelve thousand sheets, is an important aid in the study of plant variation. There is also a good collection of negatives illustrating the growing of flowers, which is being added to continually and which furnishes a useful source for lantern slides for illustrating recent methods in the management and construction of forcing-houses and the growing of flowers in the field and under glass. The Department has a collection of one thousand lantern slides, to which additions are constantly being made.

REGULAR COURSES OF INSTRUCTION

Greenhouse Management.—Studies of the principles and practice of propagation, soils, potting, shifting, watering, ventilation, fumigation, and the like, of florists' plants.

Greenhouse Construction.—The development of the modern greenhouse; types of houses, materials and methods of construction, installation of heating systems, and the like. Practice in erecting sections of cypress- and iron-frame houses, and in planning and estimating the cost of commercial ranges for flower and vegetable production.

Commercial Floriculture.—Studies in the propagation and culture of the leading floricultural crops. As facilities permit, students are assigned space in the greenhouses for practical experience in the growing of roses, carnations, chrysanthemums, violets, sweet peas, and the like.

Commercial Floriculture.—A continuation of the course described above, with lectures, assigned reading, and discussions on greenhouse plants and on the packing, handling, and marketing of cut flowers and plants for retail and wholesale markets.

Greenhouse and Garden Practice.—Designed to give the student added practical knowledge of greenhouse and garden work. Practical work in greenhouse management, propagation, composting soils, potting, and watering.

Floral Arrangement.—A study of the principles of floral art. Practice in the arrangement of flowers in designs and bouquets, baskets, table decorations, and interior decoration.

Conservatory Plants.—A study of the culture and uses of tropical and subtropical plants grown in conservatories, including palms, ferns, begonias, and orchids.

Garden Flowers.—Designed to acquaint the student with garden plants, and to give practical knowledge of the propagation and culture of the annuals, herbaceous perennials, bulbs, and shrubs used for cut flowers or in ornamental planting.

Amateur Floriculture.—The propagation and culture of plants suitable for window garden and dooryard, including a study of containers, soils, fertilizers, insecticides; also, preparation of flower beds and planting.

Propagation and Culture of Ornamental Shrubs.—Designed to acquaint the student with methods of propagation, pruning, and culture of shrubs.

Gardening.—A personal and informal course for lovers of plants and gardens. The course consists of actual work in the identification and growing of plants, supplemented by conferences and informal discussions. Attention is given to garden literature and history, planning of grounds, and the like.

Investigation in Floriculture.—Investigation of problems in growing cut flowers, exotics, and garden flowers; hybridizing; study of varieties.

WINTER-COURSE

A Winter-Course covering a period of twelve weeks has been offered for the last three years. This course begins on November 11, 1913, and ends on February 13, 1914.

The following subjects are offered :

Floriculture and Greenhouse Practice.—A study of the propagation, potting, soils, culture, insects, diseases, and marketing of flowers. Designed to familiarize the student with the ordinary operations of the greenhouse and garden.

Forcing Structures.—The construction and uses of hotbeds, coldframes, and inexpensive greenhouses; heating. Laboratory work will consist of plan-making, preparation of estimates, and erection of models.

Fertility of the Land.—A study of soils from the chemical and physical points of view, with discussions of fertilizers, manures, and the principles of plant growth.

Soils.—A study of the derivation, classification, function, and properties of soils.

Plant Diseases.—This course is devoted to the consideration of some of the common bacterial and fungous diseases of plants. It includes a study of the causal organisms, their relation to the host plants, and their control.

Elective Subjects

Plant-breeding.—A discussion of plant improvement with special reference to farm and horticultural crops. Methods of selection and hybridization as means of improvement are carefully considered.

Extension.—A study of the problems of university extension in agriculture. Practice in the oral and written presentation of topics in agriculture, with criticism and individual conferences on the technique of public speech.

Rural Improvement.—A course of six lectures, commencing after the Christmas recess, dealing with questions of rural improvement and intended to give the farm boy a general view of landscape art together with specific hints for working out some of his home problems.

GRADUATE WORK

Candidates for the degree of master of science in agriculture or for the degree of doctor of philosophy may elect their major or minor subjects in the Department of Floriculture.

INVESTIGATION

Because of the lack of greenhouse facilities, investigations in floriculture have been confined to outdoor problems. In 1904 the American Peony Society and the Department of Horticulture at Cornell University arranged a cooperative experiment for the purpose of studying all the varieties of peonies. The objects sought were to bring order out of the confusion of nomenclature so as to furnish growers with the correct names and accurate descriptions of authentic varieties; to study the botanical status of the species and varieties; and to study methods of culture, varieties best adapted for special purposes, use of fertilizers, keeping qualities, and the like. The same general work has been undertaken with sweet peas and gladioli in cooperation with the National Sweet Pea Society and the American Gladiolus Society, respectively.

In addition to the above, large collections of China asters, irises, perennial phlox, and climbing roses are being planted for investigative purposes.

Four publications on peonies and two on sweet peas have been printed. Others will appear as results are obtained.

GENERAL ANNOUNCEMENTS

DISTRIBUTION OF NODULE-FORMING BACTERIA

(Department of Plant Physiology)

The Department of Plant Physiology desires to call attention to the fact that it has, for distribution to the farmers of the State, nodule-producing bacteria for the following legume crops : alfalfa, soy bean, cowpea, Canada field pea, red clover, spring vetch, hairy vetch, crimson clover, and alsike clover.

During the past two [illegible] a large number of requests have been received for these cultures. In order to insure prompt delivery it is urged that requests for cultures be made several weeks before the cultures are needed. The charge is 25 cents per acre quantity, payable in advance. These cultures may be employed for fields already sown to the crop.

LECTURE AND DEMONSTRATION CAR

(Department of Home Economics)

The Department of Home Economics is to have the use of a car on the Lehigh Valley Railroad, which will be fitted up with exhibits showing the principles of home economics. It was a dining car, which has been thoroughly renovated, and will be used for agricultural purposes by the railroad and by the College of Agriculture. The Department of Home Economics will use the car during the month of July, stopping for demonstrations and lectures at points where it is desired. There will be kitchen, dining-room, and bedroom furnishings showing simplicity, artistic arrangement, and convenience. There will also be a miniature farmyard, modeled in clay, illustrating both the old and the modern type. The car will be used for practice work by the Summer School extension class in home economics.

DEPARTMENT OF FORESTRY

At its June meeting the Board of Trustees of Cornell University established a fifth professorship of forestry in the New York State College of Agriculture. Frank B. Moody, Associate Professor of Forestry in the University of Wisconsin, was appointed to fill the position.

Professor Moody is a native of Maine. He was graduated from the Department of Forestry in the University of Michigan in 1906. He was Assistant State Forester of Wisconsin from 1906 to 1912, at which time he became a member of the faculty of the University of Wisconsin.

Professor Moody will begin work at Cornell at the beginning of the college year in September. He will have charge of university extension work in forestry throughout the State. At the University he will teach the course on the care of the farm woodlot.

SUMMER EMPLOYMENT

Announcement concerning students available for summer employment on farms was made in the April and again in the June issue of the

Announcer—the latter announcement being inserted because it seemed as though the College would not be able to place all the students desiring summer work on farms. Requests for student help came in very slowly at first, but at the end there was received such a flood of inquiries that it was impossible to fill the demand. The College could have rendered much better service both to farmers and to students had the requests from farmers been received earlier. It is most important that inquiries regarding student help should be received not later than May 15.

This statement is made by way of explanation and for the future guidance of farmers. The College desires to express appreciation to the large number of farmers who have offered to take inexperienced students that they may get farm experience.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 327—METHODS OF FEEDING CHICKS

The successful feeding of young chickens has been considered the most difficult operation in the management of poultry. Two extensive series of experiments have been conducted for the purpose of comparing different systems of feeding. Fourteen types of rations have been compared. The results of the first series of experiments were reported in Bulletin 282, of this station, which is now out of print. The results of the second series of experiments are published as Bulletin 327. In this bulletin are reported the results of feeding seven hundred chickens, in seven flocks of one hundred chickens each, for three months. Each flock was fed for eight weeks by a different method. All seven flocks were then fed for four weeks on the same fattening ration, after which they were killed and marketed. In the bulletin each method of feeding is described and the results are illustrated by photographs of chickens, alive and dressed. A careful cost accounting is made with each flock, taking into consideration the number and value of the eggs used for hatching, the amount and value of fuel used for incubating and brooding, the amount and value of food consumed, gain or loss in weight each week, mortality, and amount of labor required in connection with the various operations including killing and marketing. Wide differences in results were found from the various methods tested. In one case the cost per pound gain in live weight was 15.3 cents; in another it was $3.55; whereas the average cost per pound gain for all the flocks was 19.3 cents. In one flock of one hundred chicks all except eleven died, and in another flock only nine chickens died.

As a result of the two series of experiments, in which one thousand four hundred and seventy chickens were observed in the feeding tests, a ration for and method of feeding young chickens has been formulated and thoroughly tried and has given exceptionally satisfactory results. This ration contains only feed that a farmer may easily procure. At the college poultry plant, four hundred and ninety-five chickens hatched in February were placed in two of the New York State gasoline-heated colony brooder-houses (described in Circular No. 16 of this station, discussed elsewhere in this Announcer), and fed on the Cornell rearing ration. All except nine chickens were grown to squab broiler size, that is, 1¼ to 1½ pound live weight—a loss of less than 2 per cent.

The methods of feeding and the kinds of food to be fed each week are described in detail in Bulletin 327.

BULLETIN 331—THE ASPARAGUS MINER AND THE TWELVE-SPOTTED ASPARAGUS BEETLE

Asparagus had been grown in this country for nearly two hundred years before it was attacked by any insect pests of importance. Now there are two species of beetles, imported from Europe, which are serious enemies of this plant; and a third pest, the asparagus miner, is apparently becoming of increasing importance each year. The bulletin here discussed is devoted mainly to a careful discussion of the life histories and habits of the miner and the twelve-spotted asparagus beetle.

The miner is a native insect. The mature form is a small fly, only about one sixth of an inch in length. Its eggs are laid just beneath the epidermis of asparagus stalks. The eggs hatch and the maggots mine in the tissue under the epidermis of the stalks. There are two broods each year, the second brood passing the winter as pupae in crevices of the epidermis on the old stalks.

The insect can probably be controlled by pulling the old stalks in the fall or early spring, and burning them in order to destroy the puparia. Experiments indicate that the flies may be killed by spraying the plants with a sweetened mixture of arsenate of lead.

The twelve-spotted asparagus beetle was introduced from Europe and was first observed in this country near Baltimore in 1881. The larvae bore into asparagus berries, on which they feed until mature. One larva may feed on as many as four berries before becoming fully grown. When mature the larvae enter the soil, where they pupate. There are two broods in a season.

As the beetles do not begin to deposit their eggs until three to four weeks after emergence, spraying with arsenate of lead—two pounds to fifty gallons of water, to which three or four pounds of laundry soap has been added—will effectively destroy the beetles before they are able to deposit their eggs.

BULLETIN 332—ORIENTAL PEARS AND THEIR HYBRIDS

During the last twenty-five years the Oriental pears and their hybrids have attracted the attention of fruit-growers throughout the country. The characteristics of the trees, together with their great productiveness, have led growers everywhere to plant these varieties of pears in large numbers. New York growers, realizing the success of growers farther south, have done likewise. The result has been an overplanting of these pears.

In New York the era of the Kieffer has passed; and, although the pear will still be planted, it will not be by the discriminating orchardist. Fruit-growers generally have been seeking information as to the suitability of these pears as stocks for the European type of pears. The investigations of the Department of Horticulture at Cornell University do not indicate that top-working is a successful practice. In the meanwhile the varieties of the Oriental type are filling a place in the pomology of the South as they meet the conditions. Although not immune to blight or to San José scale, as once thought, yet they seldom fail from these causes in South Atlantic and Gulf Coast States.

The history, evolution, status, and culture of Oriental pears are thoroughly discussed in the bulletin here considered, and descriptions of all the known varieties are given. The bulletin brings together the results and observations of the last twenty-five years and constitutes the first attempt to assemble all the information concerning one of the important types of American fruits.

BULLETIN 333—CONTROL OF TWO ELM-TREE PESTS

The elms of the eastern United States are subject to the attacks of two serious insect pests, the imported elm leaf-beetle and the elm leaf-miner. The leaf-beetle attacks both the American and European elms. Many inquiries are received each season regarding these pests and methods of fighting them.

In this bulletin are given the results of two years of work in spraying for the leaf-beetle and the leaf-miner. The types of machines used in spraying large trees are discussed in some detail. Considerable definite data are given also on the cost of spraying large trees. Observations on the life history of the beetle are also included.

It was found that the imported elm leaf-beetle could be kept under control very satisfactorily by spraying the trees with arsenate of lead at the rate of four or five pounds to fifty gallons of water. Perhaps two sprayings are best during the first year, but one thorough application each season thereafter seems to be sufficient. Large elm trees can be sprayed at a cost of thirty to forty cents per tree for one application.

The elm leaf-miner attacks the European elms by mining out the inner tissues of the leaves. This insect apparently becomes more injurious and widespread each year.

It was discovered that an application of "Black-leaf 40" and soap to the leaves would kill a large majority of the miners if made while the larvae were young. Spraying experiments extending over two seasons show that the "Black-leaf 40" should be used at the rate of one pint to one hundred gallons of water, to which has been added five pounds of ordinary laundry soap or whale-oil soap. The trees should be sprayed just as soon as the mines begin to show, and while the larvae are young.

Notes on the life history of the miner are given in the bulletin.

CLASSIFICATION OF MAILING LIST

The great diversity of agriculture in New York State and the increasing demand for the publications of the College has compelled a classification of the mailing list whereby the publications will be placed where they will do the most good, thus eliminating the waste that occurs through the placing of certain bulletins in the hands of persons who are not interested in the particular subject-matter therein contained. During 1912 persons on the mailing list for experiment station bulletins received a classification card to be filled out and returned. From the replies a new classified mailing list was prepared. Those persons who did not return the classification card have been sent, during the last month, a second card in an envelope marked "Special enclosure." Persons who received these cards are requested to fill out and return them if they desire to remain on the mailing list, otherwise their names will be dropped. Persons on the mailing-list *who have not returned cards*, and any resident of New York State desiring to be placed on the list, may fill out the following classification card, cut on the dotted line, and mail in an envelope, under two-cent postage, to the College.

Date..

Director, Experiment Station, Ithaca, New York.

Dear Sir:

Please place my name on your mailing list to receive the popular bulletins on subjects of general interest and others as checked below.

(Use pencil; indicate choice with an x)

................Apples
................Commercial floriculture
................General farming (general farm crops, live-stock, milk production)
................Grapes
................Small tree and bush fruits
................Commercial vegetable culture
................Poultry
................Farm home

I have not returned similar card.

Name..

Post office..*R. F. D.*......................................

County..*State*..

WRITE PLAINLY

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request so long as the supply lasts. Residents of New York State may be placed on the mailing list for bulletins on one or more of the following subjects: Apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, New York.

Bulletins:

226. An apple orchard survey of Wayne county
229. An apple orchard survey of Orleans county
260. American varieties of beans
272. Fire blight of pears, apples, quinces, etc.
273. The effect of fertilizers applied to timothy on the corn crop following it
283. The control of insect pests and plant diseases
286. The snow-white linden moth
289. Lime-sulfur as a summer spray
291. The apple red-bugs
292. Cauliflower and brussels sprouts on Long Island
295. An agricultural survey of Tompkins county
297. Studies of variations in plants
298. The packing of apples in boxes
302. Notes from the agricultural survey in Tompkins county
303. The cell content of milk
305. The cause of "apoplexy" in winter-fed lambs
307. An apple orchard survey of Ontario county
310. Soy beans as a supplementary silage crop
313. The production of new and improved varieties of timothy
314. Cooperative tests of corn varieties
316. Frosts in New York
317. Further experiments on the economic value of root crops for New York
318. Constitutional vigor in poultry
320. Sweet pea studies—III. Culture of the sweet pea
321. Computing rations for farm animals
322. The larch case-bearer
323. A study of feeding standards for milk production
324. A study of the biology of the apple maggot, together with an investigation of methods of control
325. Cherry fruit-flies and how to control them
327. Methods of chick-feeding
328. Hop mildew
329. The fire blight disease in nursery stock
330. Respiration of fruits and growing plant tissues in certain gases, with reference to ventilation and fruit storage
331. The asparagus miner and the twelve-spotted asparagus beetle
332. Oriental pears and their hybrids
333. Control of two elm-tree pests
334. A study of some factors influencing the yield and moisture content of cheddar cheese (in press)

Circulars :

1. Testing the germination of seed corn
3. Some essentials in cheese-making
8. The elm leaf-beetle
9. Orange hawkweed, or paint-brush
14. Working plans of Cornell poultry-houses
15. Legume inoculation
16. The improved New York State gasoline-heated colony-house brooding system
17. The formation of cow-testing associations
18. Milking machines: their sterilization and their efficiency in producing clean milk
19. Late blight and rot of potatoes
20. The fire blight disease and its control in nursery stock

(Extension Circular No. 1)

A plan for a rural community center

The above list is correct to July 1, 1913. The demand may at any time exhaust the supply of particular numbers. Requests will be filled as long as the supply lasts.

UNIVERSITY OF ILLINOIS

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office, Ithaca, New York

L. H. BAILEY, Director A. R. MANN, Editor

VOL. 2 ITHACA, NEW YORK AUGUST 1913 NO. 11

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the college.

Any resident of the State may be placed on the mailing-list to receive the Announcer, on request, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

The present issue of the Announcer is to be used at fairs in the State for answering some of the questions that are asked. For that reason the means by which the College of Agriculture through a few of its departments is endeavoring to serve the farmers of New York State are set forth. This will explain the fact that there is some duplication in the material here presented and that published in other recent issues. No attempt is made to summarize in this issue all the means of service, as that is done in a separate publication. Little attention is given to the courses of instruction or to the investigations that are being carried on, and only a few general extension activities are described.

EXTENSION WORK

(Department of Extension Teaching)

Some of the general extension enterprises that are available to local organizations and communities are :

Lectures and lecture courses.—On request lectures and lecture courses are provided by members of the college staff at such times and places as can be arranged. The local societies making such requests are asked to assume one half of the traveling expenses.

Extension schools.—The College of Agriculture is prepared to place a number of extension schools in different parts of the State during the coming year. In these schools definite instruction, with special reference to the immediate locality concerned, will be given. These schools are of one week duration and are conducted by members of the college staff. They are placed only on request, when the local expenses are borne by persons of the locality either individually or in associations, and when sufficient interest is manifested by the local people. An advanced registration of forty persons is required for each school. A small tuition fee is charged each student.

Demonstrations.—Demonstrations, on farms, in barns, or wherever actual work is in progress, may be conducted in order to show how crops, animals, or methods may be economically improved.

Traveling schools.—Railroad passenger cars are equipped with demonstration and teaching material and are used in cooperation with some of the railroads in the State.

Fair exhibits.—The college cooperates with the State Fair each year, and with as many town and county fairs as is practicable, by way of sending educational exhibits with instructors to explain them. The societies making requests for exhibits are asked to assume one half of the transportation charges and the traveling expenses of the demonstrators.

Farm visits.—A limited amount of work is now undertaken in visiting and advising in the organization of farms. Persons assisted are asked to pay the traveling expenses of the representative.

Cooperative experiments.—The college cooperates with farmers in making on their farms experiments that will be of direct practical value to them. The person on whose farm the experiment is made is asked to make reports so that the results may be given to others. Further instructions will be sent to applicants.

Farmers' Week.—This is a week for the gathering of farmers and farm women at the college. Lectures and demonstrations by members of the faculty, by successful farmers, specialists, and others who have achieved distinction in agriculture, are given throughout the week. An invitation is extended to agricultural organizations to hold their meetings at the college at this time. The next annual Farmers' Week will be held February 9 to 14, 1914.

For further information on any of the foregoing activities, address the Department of Extension Teaching, College of Agriculture, Ithaca, New York.

SOIL TECHNOLOGY

The extension work of the Department of Soil Technology is organized along two general lines : the first aims to collect information concerning soil conditions throughout the State, on the basis of which sound agricultural advice may be given in answer to questions pertaining to the soil; the second embraces all those means that are in use to disseminate information to the people of the State who are not in regular courses in the university.

Under the first head are embraced :

1. **The soil survey**, which classifies, maps, and describes the soil and related agricultural conditions of the State. The unit in this work is the county, and the results are published in the form of maps and descriptive reports. One or two counties are surveyed each year. See the Announcer for June, 1913, for fuller description of this work.

2. **Relation to crop production.** Following the soil survey a study is being made of the chemical composition, as related to crop production, of the important types of soil. Tompkins county is the only county that has been taken up for such study as yet. Some additional miscellaneous data, such as the composition of muck soils, are also being collected.

3. Problems in **land drainage** are handled so far as limited facilities will permit. The drainage conditions and methods in different parts of the State are being studied and assistance is frequently given in laying out systems of farm drainage. The Department of Soil Technology is not in position to make extensive instrumental surveys and maps.

Affiliated with the department is the New York State Drainage Association, which holds annual meetings for the discussion of questions of drainage practice. The volume of proceedings of this association, a copy of which may be obtained from the secretary at twenty-five cents, contains much useful information. Under the auspices of the association substantial prizes are offered for reports of experience in the improvement of land by means of drainage. A descriptive circular may be obtained from the secretary, Elmer O. Fippin, Ithaca, New York.

4. **Irrigation** as applied to particular soils and crops is receiving attention, and data are being accumulated concerning conditions under which it is practicable in New York.

5. **Soil improvement.** The best method of improving the productive capacity of important types of soil is being studied by means of carefully conducted, long-time series of plots that receive many kinds of fertilizers, lime, rotation, and manurial treatments. Only two such plots have been established thus far and these are on Volusia silt-loam soil—the typical hill land of southwestern New York. No conclusions will be available from these for several years.

The means used for giving out information are :

1. **Lectures** on special topics, embracing all phases of the distribution, nature, crop relations, and improvement of soils, with reference to the particular region concerned so far as such data are available. Such lectures are given as part of the extension schools held by the college, in the Farmers' Week programs, and before special audiences in granges, churches, clubs, and other organized groups.

2. **Farms may be visited** and examined for the purpose of recommending means for their utilization and improvement in the light of local conditions.

3. **Inquiries** on all phases of soil technology, including distribution of soil and agricultural conditions—drainage, irrigation, lime, maintenance of organic matter, care of manure, methods of tillage, and the purchase, composition, and use of fertilizers and lime—are received and answered as completely as available data permit.

ANIMAL HUSBANDRY

The Department of Animal Husbandry is prepared to provide lecturers to discuss topics pertaining to feeding, breeding, care, and management of horses, cattle, sheep, and swine. Letters containing definite questions as to these classes of animals will be answered promptly.

Establishing pure-bred herds and flocks. The department desires particularly to assist breeders and farmers in establishing pure-bred herds and flocks. The library of herd books and flock books is large, comprising more than one thousand volumes and including complete sets dealing with all the more important breeds and many of the lesser ones. With this equipment correspondence concerning pedigrees and records can be answered. Furthermore, for breeders who can visit the college this library offers exceptional opportunity for the study of the breeding of their animals. Members of the departmental staff will be glad to assist in such study.

Cow-testing associations. Members of the staff are available for aid in establishing cow-testing associations and local breeders' associations wherever there is a desire on the part of communities for such help. A circular on cow-testing associations will be sent on request.

Testing for advanced registry has reached greater proportions in New York than in any other State in the Union. This work has done much for the improvement of dairy cattle in this State. Information as to making tests and their cost, and suggestions as to feeding and management of cows on test, are available to breeders.

The building-up and maintenance of the college stud, herds, and flocks serves to keep the members of the staff in close touch with the practical side of animal husbandry. The members of the staff desire opportunities to share the results of this experience, together with the results of study and research, with breeders and farmers in New York State who stand in need of such counsel.

DEPARTMENT OF ENTOMOLOGY

This department is engaged in studying the more pressing problems connected with the control of insect pests of fruit trees, nursery plants, truck crops, forage crops, shade and forest trees, hops, and poultry. Much of this work is conducted in cooperation with growers or associations, either through cooperative experiments or by means of industrial fellowships.

Correspondence. The department is very glad to answer promptly any questions concerning insect pests. In order to avoid errors it is desirable that specimens of an insect and of its work accompany the letter. The specimens should be inclosed in a tight wooden or tin box. Holes for ventilation should not be punched in the box, since specimens carry better if this is not done.

Farm visits. As far as time permits, members of the staff are available for visits to individual farms for consultation concerning special insect problems. Arrangements may be made for cooperative experiments in the control of insect pests whenever such work cannot be done by correspondence.

Fair exhibits. The department has two educational exhibits of injurious insects, showing their various stages and indicating their life history. These exhibits are available for use at county fairs, meetings of fruit-growers, and similar gatherings. A member of the staff usually accompanies the exhibits in order to explain them and to consult with growers in regard to insect problems.

DEPARTMENT OF FORESTRY

Advice on timberlands. The Department of Forestry is prepared to help owners of New York State timberlands in putting such lands into the most productive condition. On request to the department a member of its staff will visit a tract, and, while on the ground, will make suggestions for thinning, for the proper harvesting of ripe timber, for protection from fire and other enemies, and for other measures that will improve the forest. This offer applies equally to the small farm woodlot and to the large timber tract. Similarly, advice will be given on the ground as to the best methods of reforesting open lands—the kinds of trees to be planted and the methods of planting. The only expense to the owner connected with an examination of timberland or of land to be planted will be the necessary traveling expenses of the investigator while he is actually engaged in the work. If several landowners in one section combine, the expense to each will be decreased accordingly.

Lectures on forestry. The department is also glad to furnish a speaker for any organization wishing to arrange a lecture on forestry. It is urged that whenever possible the meeting be preceded or followed by a field excursion, in which the lecturer can make definite suggestions for improving the forest lands of the neighborhood. Sometimes it is feasible to hold the lecture itself in the woods. It is believed that a field trip greatly increases the helpfulness of a meeting. The expense in this case also is merely that of the necessary travel. Under certain circumstances the Extension Department of the college is able to pay one half of the traveling expenses for lectures, but this does not apply when men are sent out to make examinations of woodlands.

Cooperation in forest development. A recent New York State law makes it possible for counties, towns, and villages to acquire and manage forest lands on a permanent basis. This law should have effective results in most sections of the State where there is forest land needing permanent care. A Reading-Course lesson has been published describing the provisions of the law. This lesson will be sent free on request. The department is ready to help the citizens of any community in bringing about the establishment of a county, town, or village forest.

The department wishes to cooperate, in matters of forest planting and the care of woodlands, with water companies, city water boards, lumber companies, railroads, and other organizations or individuals who are interested in the permanent development of forest properties. The department is ready at all times to give without charge any assistance that can be given by correspondence.

Correspondence relating to lectures should be addressed to the Department of Extension Teaching. All other correspondence regarding forestry should be addressed to the Department of Forestry.

DEPARTMENT OF HOME ECONOMICS

The former belief that education consists in teaching facts to persons is passing. The modern idea of education is to give to persons a liberal training through subjects and things in which they are especially interested. The main function of the Department of Home Economics at Cornell University is therefore to give to young women a broad training through their natural interest in household affairs.

Courses in home economics at Cornell University include such subjects as preparation of food, human nutrition, household management, household sanitation, home nursing, care of children, household decoration and furnishing, sewing and dressmaking, dress-designing. It is the object of the department to make it possible for any woman or girl in

New York State who is interested in the affairs of the household to receive some training in these branches. The effort to accomplish this object is being made in the following ways:

1. **A four-years course** in home economics leading to the degree of bachelor of science is offered for young women wishing to take a college course in which household subjects are taught.
2. **A winter-course** in home economics, beginning in November, is offered for women who have immediate housekeeping problems to solve and who do not wish the academic work. The purpose of the winter-course is to help those women who seek the stimulation that comes through learning, to solve old problems in a new way. Any woman in New York State eighteen years of age or older is eligible to enter the winter-course.
3. **A summer course of six weeks,** beginning about the first week in July, is planned especially to meet the needs of persons who are teaching or who intend to teach home economics subjects. Many housekeepers also are interested in summer-school work.
4. **A Homemakers' Conference** is held during Farmers' Week (February 9-14, 1914). Series of lectures on various home economics subjects are given during this week, and women from all parts of the State meet to hear lectures, discuss their problems with members of the staff, and exchange notes with other housekeepers of the State.
5. **Institute schools** one to two weeks in duration are held in sections of the State where the interest is great enough to demand them. In a sense the college goes to the community instead of having some few in the community go to the college. Members of the Department of Home Economics attend these schools and give a series of lectures and demonstrations. The girls and women attending are expected to register for the entire work and to attend daily, as they would attend any school. In this way good teaching can be done.
6. **A Reading-Course for the Farm Home** makes it possible for any woman in New York State who cannot attend the college or the institute schools to receive some training in home economics. One bulletin is sent out from the department each month. These bulletins are sent free to residents of New York State.
7. **Lectures and demonstrations.** Besides the work already outlined, members of the department give talks on household subjects at granges and farm clubs, conduct meetings on demonstration cars sent out by the various railroads, give demonstrations in bread-making, fruit-canning, and other types of food preparation at the rural schools, and prepare an exhibit for the State Fair.

The department is now housed in its new building, which is especially prized since the money that was appropriated to build it came as the direct result of the keen interest of the women of the State in asking for such a building.

DEPARTMENT OF VEGETABLE GARDENING

Every year New York State produces miscellaneous vegetables worth about $16,000,000, besides potatoes to the value of about $20,000,000 and products from thousands of home gardens in both town and country. In order to meet the needs of these vast interests, which have received scant attention in the past, the Department of Vegetable Gardening has been organized at the State College of Agriculture. The work falls under the usual three heads—instruction, extension, and investigation.

Instruction.—Courses for regular and special students are offered in home gardening, in commercial outdoor vegetable production, in vegetable-forcing, in systematic crop studies, and in special problems. Gardens, greenhouses, and laboratories, equipped with an abundance of tools and materials, are available for this work. Constant practice in the care of plantings is a feature of the courses.

Short winter-courses are planned so as to give the student a rapid survey of the same general subjects. The fundamental principles are pointed out and their usefulness in the field is emphasized.

Extension.—A member of the staff gives his whole time to extension work. Through meetings, winter schools, fair exhibits, and visits to individual farms, the department offers its services to the growers of the State. A series of Reading-Course lessons on home gardening is being issued, three having already appeared. These are available on application to the college.

Investigation.—An experiment for determining the best method of supplying nitrogen to muck-land crops is now in its third year and is being conducted in three widely separate sections. The department plans to develop cooperative trials in the producing districts of the State as rapidly as demands arise and funds permit. A thorough study of the lima bean, its varieties, cultivation, and fertilization, is under way at the college. Preparations are being made this year for material expansion of the investigative work, including a carefully planned test to determine the best method of maintaining permanent fertility in asparagus beds.

FAIR EXHIBIT—DAIRY INDUSTRY

The Department of Dairy Industry is prepared to send exhibits to a limited number of fairs in the State during the latter part of August and during September. The exhibits contain demonstrations and material representing methods of handling milk and dairy products in the best-approved way. The various tests of products can be demonstrated. Persons interested may bring samples from their own herds or factories and have tests for butter-fat, moisture, salt, solids, and the like made at the fair, free of charge. A representative of the department will be in charge of the exhibit and will be glad to answer inquiries that dairymen may wish to make in connection with their work. Counties desiring the cooperation of the department in regard to exhibits of this kind should communicate as soon as convenient with the Department of Extension Teaching at the State College of Agriculture, Ithaca, New York.

EXHIBIT OF DISEASES OF PLANTS

(Department of Plant Pathology)

The Department of Plant Pathology has prepared an exhibit for use at county and state fairs. This exhibit consists of a number of mounted specimens of diseased plants showing the characteristic symptoms of disease, with recommendations for control. An exhibit of fruit-tree cankers will also be shown, together with demonstrations illustrating proper methods of treatment. Various fungicides will be on exhibit and explanations will be made regarding their preparation. At county fairs the department wishes particularly to feature methods of control of oat smut and of potato blight and rot. On request the persons attending the booths will explain the cause and control of various plant diseases, and will determine diseases on plants brought in for identification.

MEETING OF POTATO-GROWERS

During Farmers' Week at the New York State College of Agriculture last February, a potato show was held and a special program for potato-growers was given. The growers in attendance voted that it would be desirable to hold one or two summer meetings. One of these summer meetings is to be held on August 20 at the farm of T. E. Martin, West Rush, New York. A part of the day will be devoted to a discussion of timely topics confronting potato-growers, and another part will be spent in inspecting the potato fields on Mr. Martin's farm. The question of forming a state organization will also be discussed, and some definite action will probably be taken. All potato-growers in the State are urged to attend this meeting. For the program and for further information address T. E. Martin, West Rush, New York.

TIMOTHY CONTESTS

(Department of Plant-breeding)

The timothy contest that was organized in Jefferson county last year is giving promise of gratifying results. About fifty men received the seed of "Cornell Standard," and of these fifty about thirty now have the individual plants growing in plats. The exhibit and contest will be held in the fall of 1914, when the plants will have reached a full stage of development. At that time the cooperators will be able to harvest a considerable quantity of seed, which can be increased in broadcast plats. Thus the seed of this pure variety of timothy may soon be produced in commercial quantities. The movement has received the indorsement of the Jefferson County Farm Bureau and is being watched with much interest.

The Department of Plant-breeding is prepared to assist in the organization of a limited number of similar contests in other counties during the coming fall. A representative of the department will help in organizing the work and in distributing the small quantities of seed that will be used. Communities or counties wishing to organize contests should communicate immediately with the Department of Plant-breeding, since the seed should be distributed in August.

COUNTY, TOWN, AND VILLAGE FORESTS

(Reading-Course Lesson for the Farm)

A law that recently went into effect in this State makes it possible for counties, towns, and villages to acquire and manage forests as permanent crop-yielding properties. The Reading-Course lesson on county, town, and village forests states the provisions of the law and explains the advantages to be derived by counties, towns, and villages from the establishment of such forests. Several photographs are shown illustrating what is being accomplished along this line in other localities. The lesson should be of live interest to granges, business men's organizations, county, town, and village officials, women's clubs, and all others who are interested in putting non-agricultural lands to profitable use. The lesson may be obtained on application to The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, New York.

COURSES OF INSTRUCTION AT THE COLLEGE

The resident courses of instruction offered by the State College of Agriculture are as follows :

1. **Regular, or four-years, course.**—This course is of equal academic rank with other courses in Cornell University, and it leads to the degree of Bachelor of Science. The equivalent of a high-school training is necessary for admission. Thorough instruction is offered in the round of the field of agriculture, including courses in agricultural chemistry, animal husbandry, botany and plant physiology, dairy industry, drawing, entomology, biology, nature-study, extension teaching, the farm, farm crops, farm management, farm practice, forestry, home economics, floriculture, landscape art, meteorology, plant-breeding, plant pathology, pomology, poultry husbandry, rural economy, soil technology, and vegetable gardening.

2. **Special work.**—Opportunity to pursue special work is provided especially for those who wish to fit themselves for practical farming but who cannot take a four-years course, and for those who desire to spend one or two years in special study. In order to be eligible for admission to special work, applicants must offer two years of recent farm experience; in addition, they must offer fifteen units of entrance credits or be twenty-one years of age. Each application is considered on its merits.

3. **The Winter-Courses.**—The Winter-Courses are seven in number : (1) Agriculture, (2) Dairy Industry, (3) Poultry Husbandry, (4) Fruit-Growing, (5) Home Economics, (6) Flower-Growing, (7) Vegetable Gardening. All courses begin on November 11, 1913, and continue for twelve weeks. These are short, practical courses, open to persons eighteen years of age, or older, who have had at least a common-school education.

4. **The Summer School.**—A special six-weeks course for principals, teachers, and supervisors of agriculture and home economics. The courses are open also to other qualified persons.

For complete announcements of any of these courses address The Secretary, College of Agriculture, Ithaca, New York.

EXPERIMENT STATION BULLETINS

The experimenting staff is endeavoring to solve some of the more pressing agricultural problems of the State. The results of this work are published in bulletins which are usually more technical than Reading-Course lessons and contain experimental data. Experiment Station bulletins are not issued at regular intervals; about eighteen are prepared each year. A list of available bulletins will be sent on request. Residents of New York State may be placed on the regular mailing list by addressing the Mailing Room, College of Agriculture, designating one or more of the subjects in which they are particularly interested : apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home.

THE CORNELL READING-COURSES

The Cornell Reading-Courses are two in number—the Course for the Farm and the Course for the Farm Home. The purpose of these courses is to assist persons who desire to learn but are unable to leave their work. These are not correspondence courses in the usual sense, but are a means of interesting readers in elementary agricultural subjects and important farm, household, and general rural problems. They also aim to lead the reader to express his opinion and discuss his own experience. The lessons in each course are issued monthly. The Reading-Courses are free to residents of New York State.

Course for the Farm.—Enrollment in this course is by subjects. New lessons on selected subjects are sent to readers as issued. Individual attention is also given to each reader to the end that consecutive instruction is received. When the discussion paper that accompanies each lesson is returned it is read carefully and a personal reply is made when information is requested. Another Reading-Course lesson on the same general subject is sent if available, or references for advanced reading are sent if desired. The Reading-Course for the Farm aims to assist those who desire to read reliable agricultural literature.

Course for the Farm Home.—See page 43 of this issue.

Any resident of New York State desiring to receive Reading-Course lessons may fill out the following card, cut on the dotted line, and mail to the College in an envelope under two cents postage.

Please enroll me in the Cornell Reading-Courses on the subject or subjects underscored below.

(*Course for the Farm*) The soil; Poultry; Rural engineering; Farm forestry; The horse; Dairying; Fruit-growing; Farm crops; Stock-feeding; Vegetable gardening; Plant-breeding.

(*Course for the Farm Home*) The farm home.

Name..

Post office..

R. F. D. or street..

County..

The Cornell Reading-Courses are free to residents of New York State.

PLEASE WRITE PLAINLY

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
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W. A. STOCKING, JR., Acting Director   A. R. MANN, Editor

VOL. 2   ITHACA, NEW YORK, SEPTEMBER, 1913   NO. 12

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the college.

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DEPARTMENT OF VEGETABLE GARDENING

Few persons know that the vegetable products of the farms and commercial gardens in New York State are of greater value than all other horticultural products combined. Not considering potatoes—the production of which is valued at twenty million dollars—the other vegetables represent a value of sixteen million dollars, against seventeen million dollars for tree fruits. This includes no account of the large amount of produce that is yielded by home gardens in town and country.

It is the aim of the Department of Vegetable Gardening, which has recently been organized at Cornell University, to serve these important interests as completely and effectively as possible. Not all phases of the work can be fully developed at once, and the lines of progress will be determined largely by the demands arising.

INSTRUCTION

The need for college-trained men who can qualify as leaders in the advancement of vegetable interests is keenly felt. It is thus necessary that instructional work be emphasized. The boys of the vegetable farms have not yet appeared in considerable numbers in our colleges. Until they do, there will be a lack of men who combine good practical experience with adequate scientific training.

The courses of study have been planned to meet the needs of three classes of students, as follows:

(1) For students who are interested in home production alone, **Course 1, Home Vegetable Gardening,** is offered. The lectures and practice in this course deal with the laying out of the plot, selection of seed, the growing of early plants, planting, care of plants, control of pests, and the harvesting and storing of products.

(2) In increasing numbers general farmers are planting vegetables as commercial crops, shipping to city markets or selling to local canneries. For such farmers **Course 2, Commercial Vegetable Gardening,** is planned. In this course, lectures, textbook study, recitations, and practice take up the planning and management of the vegetable farm. Crops are considered singly and the characteristics and cultural points for each are studied. Individual plots are assigned to the students, and each student cares for his own plants from the time when the seed is sown, both in the greenhouse and out of doors, until the end of the term in June.

(3) For students who desire to specialize in vegetable gardening, either on the farm or in the college and experiment station, the following courses are planned:

Course 3. Commercial Vegetable Gardening.—This course covers essentially the same ground as is covered by Course 2, but it is much more thorough, extending throughout the year.

Course 4. Vegetable-forcing.—The production under glass of vegetables for market is considered. Each student cares for his own plot in the greenhouse.

Course 5. Systematic Vegetable Crops.—This consists of a study of the botanical relations, types, varieties, and strains of vegetables. The leading varieties are grown in the gardens each year.

A few students who are specializing in vegetable gardening are offered opportunity for additional practice work in greenhouses and gardens. Students who have taken the elementary courses and who are deeply interested in vegetable gardening are encouraged to undertake investigations of an elementary nature.

Short winter-courses are offered, covering the same lines of work as do the regular courses. The winter-courses this year begin on November 11, 1913, and end on February 13, 1914.

Full details regarding courses may be obtained on application to the Secretary, College of Agriculture, Ithaca, New York.

EXTENSION

A member of the staff devotes his entire time to extension work in vegetable gardening. Instruction is given in winter schools, at fairs, and at meetings of various kinds. A wide correspondence with growers is conducted and inquiries regarding cultural questions and difficulties are invited. Home interests as well as commercial interests receive careful attention. It is through such correspondence that the Department can best learn of the problems of the field and can best determine the most profitable lines of investigation.

Cooperative experiments have already been established in three of the muck sections of the State, and others will be placed in market-garden and upland trucking districts as rapidly as demands are made and funds will permit.

Three Reading-Course Lessons on home gardening have been issued and are available on application to the Mailing Room, College of Agriculture, Ithaca, New York.

INVESTIGATION

Research work in vegetable gardening at Cornell University is as yet in an early stage. Studies in muck-land problems have been in progress for three years. These studies have for their object the determination of the best method of supplying nitrogen to the three most important crops grown on these lands—onions, celery, and lettuce.

The lima bean is the object of a study now being conducted. Experiments include fertilizer, cultural, variety, and strain trials.

A long-term experiment is being established with a view to determining the best method of maintaining fertility in asparagus plantations on upland soils. Other lines of work are being developed, and bulletins will be issued as well-authenticated results appear.

EQUIPMENT

The Department begins its work with an equipment which is adequate in most respects. The gardens embrace nearly twenty acres of upland in Craig Field and nearly three acres of sandy soil at East Ithaca. The former area is used for experimental work and for the production of material for systematic study. The latter area is devoted chiefly to practice plots for students. An irrigation system has been begun and is to be developed so as to include practically all the plantings requiring it.

An area of nearly four thousand square feet of greenhouse space is devoted to vegetable work. The new greenhouse, 34 by 50 feet in size, is the beginning of a vegetable range which is to be gradually extended and which is to include all the important commercial types of houses.

In addition to the usual equipment of offices, laboratories, and classrooms, there are increasing collections of vegetable herbarium material, preserved specimens of products, seed samples, and lantern slides and photographic prints and negatives.

WINTER COURSES

The New York State College of Agriculture offers each year the following seven winter-courses:

(1) **Course in Agriculture.**—This course is intended for young men and women who expect to engage in general farming or who hope to obtain positions as farm superintendents. The subjects covered by the course are fertility of the land, soils, feeds and feeding, breeds and breeding, the horse, farm butter-making, market milk and milk inspection, injurious insects, extension work, farm crops, farm management, cost accounting, flower-growing, the farm woodlot, home economics, rural improvement, plant-breeding, plant diseases, general fruit-growing, farm poultry, farm mechanics, farm engineering, farm structures, home vegetable gardening, and diseases of dairy cattle and veterinary hygiene.

A student may take any of these subjects that he desires. It is impossible to take all of them during one winter, and students can return for a second or a third winter without repeating any courses.

(2) **Course in Dairy Industry.**—This course is intended for persons who desire to fit themselves for the business of manufacturing butter or cheese, or of handling milk for the market. The subjects covered are milk composition and tests, butter and butter-making, cheese and cheese-making, dairy bacteriology and market milk, dairy mechanics, dairy chemistry, dairy arithmetic and bookkeeping, feeds and feeding, and diseases of dairy cattle and veterinary hygiene.

After the close of the Winter-Course in Dairy Industry a limited number of students who are interested in the making of fancy cheese and ice cream may remain for a **Special Ten-days Course in Fancy Cheese and Ice Cream.**

Early in March of each year, a **Special One-week Course for Managers of Factories and Creameries** is offered for managers who cannot be absent from their business for any considerable time but who wish to come to the College in order to obtain the latest information in their special work. This course is open only to persons who have had at least one year of experience as manager of a factory or a creamery.

(3) **Course in Poultry Husbandry.**—A course intended for persons expecting to take up poultry-raising as a business. The subjects covered include the field of poultry husbandry, poultry-house construction, poultry-farm management, feeding and management practice, marketing, poultry mechanics, incubator practice, brooder practice, poultry accounts, the breeds and breeding.

(4) **Course in Fruit-growing.**—A course for fruit-growers and for persons expecting to take up the growing of fruit commercially. The subjects treated are commercial fruit-growing—including propagating, budding, grafting, spraying, pruning, cultivating, picking, storing, marketing—plant diseases, injurious insects, fertility of the land, soils, and farm crops.

(5) **Course in Home Economics.**—A course that provides scientific training in subjects pertaining to the home. The subjects taught are foods, feeding and care of children, household sanitation, household management, sewing and drafting, art in the home, millinery, weaving, dyeing, basketry, and candy-making.

(6) **Course in Flower-growing.**—For both professional and amateur flower-growers. Subjects covered in this course are floriculture and greenhouse practice, forcing structures, fertility of the land, soils, plant diseases, plant-breeding, extension work, and rural improvement.

(7) **Course in Vegetable Gardening.**—A course both for the professional vegetable gardener and for the person desiring to improve his home garden. The subjects treated include commercial vegetable gardening, vegetable-forcing, forcing structures, fertility of the land, soils, and plant diseases.

Who may attend.—The winter-courses are open to both men and women of at least eighteen years of age. Applicants for admission should have been graduated from a common school or should have an eighth-grade certificate. There is no limit to the age above eighteen; many of the best students have been mature men and women.

The time.—The winter-courses are each twelve weeks in length, and begin about the middle of November and close about the middle of February. The courses in 1913-1914 will open on November 11, 1913, and close on February 13, 1914. A vacation will be allowed at Christmas time.

The expenses.—Tuition is free in all the winter-courses to residents of New York State. Nonresidents pay a tuition fee of $25. There are a few incidental fees in the courses, and students are required to buy a few books, instruments, and other small equipment. The average expense, including room and board, laundry, books, and fees, is about $110 for the twelve-weeks course.

The courses occupy the student's time so fully that it is not advisable for winter-course students to attempt to earn any of their expenses while taking a course.

Living arrangements.—Students lodge and board in private houses near the campus. Assistance in finding desirable locations is provided by the College. Students should come to Ithaca a day or two before the opening day of the winter-courses, in order to find accommodations and get established before class work begins.

Scholarships.—The New York State Grange has established twelve scholarships in the winter-courses, each worth fifty dollars in cash. The awards are made in summer on competitive examinations. For information concerning these examinations, one should apply to the Master of the Pomona Grange in his county or to the Deputy if there is no Pomona Grange. The scholarships are open only to members of the Grange.

Application for admission.—Applicants should address A. R. Mann, Secretary, College of Agriculture, Ithaca, New York, asking for a full announcement of the winter-courses. An application blank, with full instructions as to how to fill it out, will be found in the announcement. The making of an application is a simple matter. There are no examinations for admission.

Applications should be filed early with the Secretary.

Methods of instruction.—The winter-courses are business or occupational courses, and every effort is made to emphasize the practical side. Instruction is given by lectures, by practical work, and by trips or excursions to points of special interest. The College is well equipped to give practical instruction in the subjects offered in the winter-courses, through the use of barns, greenhouse, creamery, poultry plant, machine shop, and other laboratories.

Positions.—The College does not promise to find positions for students registered in any of its courses, but it has opportunity to recommend students for a large number of positions and it stands ready to help all worthy students who desire positions. Thus far it has been difficult to find students for all the places that the College has been asked to fill.

EXHIBITS AT THE STATE FAIR

The New York State College of Agriculture at Cornell University is to be represented at the State Fair, which will be held at Syracuse September 8 to 13, by educational exhibits showing the work of the various departments at the College. The exhibit presented at the National Corn Exposition in Columbia, South Carolina, will be one of the main features; this shows a model of a rural community center meeting the needs of the various community interests. The Department of Plant-breeding will exhibit, by means of charts, photographs, and plants, the results of the year's work in the improvement of varieties of grains and grasses, with special reference to timothy work. The Department of Forestry will have a large exhibit dealing with the problems of the farm woodlot and of general reforestation; special attention will be given to individual problems in farm forestry. The Department of Poultry Husbandry will arrange for an extensive educational exhibit dealing with the more important questions of poultry-raising; this exhibit will include models of colony-houses, brooder systems, and modern poultry-house appliances, also charts and photographs showing the experimental work of the Department. The Department of Soil Technology is preparing a special exhibit relating to soil management and drainage work; this will include charts, photographs, and models. The Department of Home Economics will have a special exhibit which is used in its work with traveling schools; this exhibit relates to household management, household sanitation, decoration, and problems of nutrition. Among the exhibits of other departments will be that of Entomology, dealing with insect pests and their control; Plant Pathology, taking up the more common plant diseases and methods of prevention; Pomology, with special reference to packing and marketing fruit; Vegetable Gardening, with emphasis on the home garden; Plant Physiology, dealing with legume inoculation; Farm Mechanics, taking up problems of irrigation, water supply for the farm, and sewage disposal; Farm Management, with charts on the results of farm surveys; Dairy Industry, with special emphasis on dairy bacteriology; Animal Husbandry, taking up problems of feeding and breeding; and Farm Crops, dealing with the questions of seeding and growing some of the important farm crops.

Each department will have members of its staff on hand, prepared to explain any part of the exhibit and to take up with visitors special questions relating to it and to other farm problems.

PUBLICATIONS

BULLETIN 334—A STUDY OF SOME FACTORS INFLUENCING THE YIELD AND THE MOISTURE CONTENT OF CHEDDAR CHEESE

For the last few years the amount of cheddar cheese that can be produced from a pound of milk has been a very important question to the milk-producer and the cheese-maker. This is especially true in localities where competition between factories is keen. In the bulletin here discussed a few of the more common factors that influence the yield are considered. The question of yield is directly related to the amount of moisture that can be incorporated into the cheese; therefore the factors studied deal entirely with the control of the moisture content of the cheese. Some of the factors studied reduce, and some increase, the moisture content and the yield of cheese.

CIRCULAR NO. 16—THE IMPROVED NEW YORK STATE GASOLINE-HEATED COLONY-HOUSE BROODING SYSTEM

The brooding of chickens in moderately large flocks is becoming more and more common. The economy in labor makes this practice especially attractive. The Department of Poultry Husbandry at Cornell University has devised a brooder that will brood large flocks of chickens with results equally as good as, or better than, those obtained with small brooders.

The description of this brooder is contained in the circular here discussed. The circular gives the working plans of an A-shaped colony house 8 feet square; it interprets these drawings and describes in detail the construction of the house. The heating apparatus also is described and illustrated, and the management of the brooder is discussed. Since the publication of Bulletin 277 of this station, on "The Principles of Brooding and the Improved New York State Gasoline-Heated Colony-House Brooding System", several modifications have been made both in the construction of the house and in the heating apparatus.

CIRCULAR NO. 17—THE FORMATION OF COW-TESTING ASSOCIATIONS

All evidence goes to show that the dairy business maintains a fairly profitable status only because good individual producers make up for the deficiencies of poor ones. The elimination of low-producing animals is without doubt the first step toward improvement, and this elimination cannot be brought about successfully unless records of production of each cow are kept systematically. Along with such records of production it is at least highly desirable, if not absolutely essential, that a record of food consumed be kept as well. There is no reason why any dairyman cannot himself keep the records that are necessary for this selection. If a dairyman keeps his own records, he is more likely to make intelligent and profitable use of these than if they are kept for him by some one else. The fact that most dairymen do not keep such records has led to the formation of cow-testing associations. By cooperative effort a dairyman may obtain at small cost information that in most cases he would not take the trouble to obtain for himself.

Cow-testing associations may be organized in various ways and under various plans, and each association should be organized with due regard to its own local condition. The essential feature in any organization is to employ a reliable, painstaking man to do the work of testing. The circular here noted gives information concerning the need for cow-testing associations in New York State. The details of organization are discussed in full and the approximate cost of running an association for one year is shown.

In view of the large importance to the dairy interests of the State in obtaining a larger average yield per cow, the New York State College of Agriculture will be glad to cooperate in the formation and operation of cow-testing associations, as follows:

Whenever, in any locality, twenty-five or twenty-six dairymen representing not less than five hundred cows are ready to form a cow-testing association, the New York State College of Agriculture, through its Department of Animal Husbandry, will send a representative to assist in perfecting the organization. It is distinctly understood that the College will not canvass for the preliminary organization; the initiative must come from those desiring to engage in the work. If desired, the College will recommend the services of a competent person to act as tester for the organization, and will oversee his work in the beginning. When possible it will also send a representative to address a public meeting of farmers or dairymen in order to encourage the formation of a cow-testing association. For the first year the College will furnish, free of expense, the necessary blanks required for keeping the records, both for permanent records and for the owners' private records.

In any locality it will undoubtedly be necessary for some public-spirited individual to take on himself the task of canvassing for the preliminary interest in the organization. Any one engaging in this work and desiring the cooperation of the College should correspond with H. H. Wing, Professor of Animal Husbandry, College of Agriculture, Ithaca, New York.

CIRCULAR NO. 18—MILKING MACHINES: THEIR STERILIZATION AND THEIR EFFICIENCY IN PRODUCING CLEAN MILK

This circular has been prepared for the purpose of showing the amount of care necessary in order to keep milking machines in a good sanitary condition. A large part of the dirt and the bacteria that get into milk gain entrance between the time when the milk leaves the udder and the time when it is removed from the barn. Theoretically, a milking machine that draws the milk through closed tubes directly from the udder into a covered pail is the ideal machine for getting clean milk.

Unless, however, the machines are properly cared for, they may contaminate the milk with large numbers of bacteria.

In the circular are given results of trials with different methods of washing and sterilizing the milking machines, and the effect of the different methods on the bacteria content of the milk. Steam and boiling water cannot be used for sterilizing the rubber parts of the milking machine because of the softening effect on the rubber. It is necessary to use certain germicidal solutions. A number of these were tried, and the solutions producing the best results are given in this circular. The best method of sterilizing the rubber tubes and the teat-cups is to soak them in a germicidal solution, the formula for which is given. The tank used for this purpose is illustrated.

HOME ECONOMICS AT THE NEW YORK STATE COLLEGE OF AGRICULTURE

(Lesson for the Farm Home Reading-Course)

A recent lesson in the Cornell Reading-Course for the Farm Home consists of an historical sketch and description of the work in home economics at the New York State College of Agriculture. A description is given of the extension work as it has progressed since 1912, and of the meaning of home economics in the course of study at the College.

THE FARMHOUSE

(Lesson for the Farm Home Reading-Course)

In this lesson are included plans for various farmhouses. The plans are suggestive either for remodeling an old farmhouse or for building a new one. The fundamental principle in building and in remodeling is the same, namely, to have a well-thought-out plan. On a farm on which an entire industry makes several buildings necessary, the house should be only a part of the plan, in which the relation of the buildings to one another, as well as such considerations as sunlight, view, roadways, and gardens, should be studied carefully.

A farmhouse is more difficult to plan than is either a city or a suburban dwelling, because it must provide for so many needs. It is a home, a business center, and to some extent a store and market. For this reason, perhaps, there are very few well-planned farmhouses. Every house consists of three parts, according to purpose—working area, living area, and sleeping area. The principles of rational house-planning are based on these three divisions, and it is the function of a good plan to organize them into a compact arrangement allowing each requirement an area to itself.

In order to be a success a country house should be in tune with the color and the contour of the lansdcape. Low, broad, and snug houses are much more a part of the landscape in the country than are the tall, narrow structures that are necessary in the city.

Definite statements on the cost of building are impossible, since actual cost is largely determined by locality. However, it is probable that no house with modern improvements can be built for less than twelve cents a cubic foot; and a modest house, unless fireproof, need not exceed twenty cents a cubic foot.

In general, any person who expects to make changes in a house should begin to plan a long time in advance. Many plans should be considered and the final plan should be accurately drawn, for successful results are based on definite instructions.

No individual has a moral right to build an unsightly house, since it is to stand not for a month or a year but for generations. Thus a good architect should always be consulted before a new house is built and before an old house is remodeled to any extent.

TILTH AND TILLAGE OF THE SOIL

(Lesson for the Farm Reading-Course)

The productive capacity of the soil is largely dependent on its physical nature. The physical properties of the soil determine ease of root penetration, absorption and circulation of water, ventilation, and many of the processes that supply food to the roots of plants.

The physical nature of the soil is determined by the fineness of the soil particles and the proportion of the different sizes of particles. It is determined also by the manner in which these particles are arranged. If they are very close together the soil may be too compact for the best plant-growth. Some soils, such as sand and gravel, are too loose and open.

The physical condition of a soil which affords the best medium for the growth of plants is termed good tilth, and is a friable, mealy, and, in the field, freely moist state. It is developed by several processes, of which some are naturally operative and others are artificial. These are proper tillage, drainage, addition of lime, introduction of decayed organic matter in the form of humus, development of plant roots and burrowing of animals, and the freezing of the wet soil. Good drainage is the most fundamental factor in the maintenance of good tilth. The other factors are correlated with this in their action.

Plowing and appropriate tillage are the means most within the control of the farmer to put the soil in good physical condition. The benefits of deep plowing are emphasized. Good plowing implies a proper depth and the correct position of the furrow, which should be at an angle of about thirty to forty degrees. Good plowing at the right time, coupled with thorough subsequent tillage, is essential in order to make a good seed bed.

Cultivation is the operation of stirring the soil, as distinguished from plowing, which turns over the soil. There are many kinds of implements for cultivation suited to different crops and conditions of soil. They are of two types : cultivators proper, which are usually guided by handles; and harrows.

Rollers, packers, and pulverizers are also used in preparing the seed bed.

The practice of subsoiling has a very limited application in New York State. The use of dynamite for breaking up the subsoil has some value as a substitue for the subsoil plow, and is probably most useful on stony, rooty land. As a means of drainage the use of dynamite is of no avail unless it breaks through to some porous stratum below.

The lesson outlined above includes sixteen figures, showing the nature and the basis of good and bad tilth and illustrating all the common soil-working implements.

METHODS OF BREEDING OATS

(Lesson for the Farm Reading-Course)

This lesson contains a discussion as to the difference between varieties of oats with respect to yield of grain and percentage of meat. Methods of improvement are discussed in detail. First the method of selection is outlined, so that a grower may use the plan suggested in the improvement of his own oats. The method of hybridization is also discussed in detail.

Some results that have been obtained in the oat-breeding work at the Cornell University Agricultural Experiment Station are given, in order to show the value and the possibilities of such improvement work. The result of a straight selection from the Welcome variety has shown an average gain of 14.3 bushels an acre over the variety test for the last two years. A selection from the Sixty Day variety for the last three years has given an average gain of 11.9 bushels an acre. The hybrid between Burt and Sixty Day has given an average gain of 11.1 bushels an acre for the past three years.

CORNELL RURAL SCHOOL LEAFLET

The Cornell Rural School Leaflet for September is now being distributed to the elementary teachers of New York State. It contains subject-matter relating to nature-study and elementary agriculture, as outlined by the New York State Syllabus to be studied in the schools during the year 1913-1914. The material has been prepared by specialists in the various subjects and is presented, together with pedagogical notes and general articles relating to school work, in a leaflet of two hundred and twelve pages.

A copy of this leaflet should reach every elementary teacher in New York State without personal request. The names of all teachers under rural supervision are obtained early in the year from the district superintendents and a copy of the leaflet is sent directly to each teacher named. In the case of elementary teachers in cities, copies are distributed through the superintendent of schools, to whom, on order, a supply is sent in bulk. Teachers in New York City receive copies through the Office of School Supplies.

During the year three leaflets for boys and girls will be published, which will be available to children in elementary schools under rural supervision. Teachers in such schools may obtain the leaflets for their pupils by sending to the College a list of the children's names on the blank which accompanies the leaflet for teachers. Copies are not sent to children personally, nor to schools unless the names of the pupils have first been received.

ANNOUNCER
OF THE
LEGE OF AGRICULTURE

ned on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office, Ithaca, New York

W. A. STOCKING, JR., Acting Director
A. R. MANN, Editor

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing-list to receive the Announcer, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

THE WINTER COURSES

The Winter Courses to be given at the college this year will open on the morning of November 11 and will close on February 14. It is of great importance that all persons who are planning to attend shall file their applications and make the other preliminary arrangements well in advance. Now is the time to attend to the matter. Announcements of the courses, containing application blanks, will be forwarded without expense on request to the Secretary, College of Agriculture, Ithaca, New York.

The courses have been somewhat enlarged and reorganized during the past summer, so that students in attendance this year will have a much wider range of choice of subjects. The subjects covered this year include special courses in fertility of the land, animal feeds and feeding, animal breeds and breeding, the horse, butter making, market milk and milk inspection, milk composition and tests, dairy mechanics, dairy chemistry, dairy arithmetic and bookkeeping, cheese making, dairy bacteriology, injurious insects, extension work, farm crops, farm management, cost accounting, flower growing and greenhouse practice, forcing structures, the farm woodlot, rural improvement, plant breeding, plant diseases, fruit growing, poultry husbandry, poultry mechanics, poultry accounts, farm mechanics, farm structures, soils, home and commercial vegetable gardening, vegetable forcing, diseases of dairy cattle and veterinary hygiene, foods, household sanitation, household management, sewing and drafting, art in the home; and in addition a special ten-days course in the manufacture of fancy cheese and ice cream, and a special one-week course for managers of factories and creameries, are offered.

WINTER COURSE IN VEGETABLE GARDENING

The value of all vegetable crops in New York has increased in ten years from twenty-six to thirty-six million dollars, and of miscellaneous vegetables the increase in value has been eleven to sixteen million dollars. Produce of this class is consumed in rapidly increasing quantities, and quality is recognized more than ever. Market gardening near our cities, truck farming on both muck lands and uplands for shipment to distant points, production for cannery, and culture of vegetables under glass are all making rapid progress, not only in extent of operation but also in efficiency of method. Many of our markets are but poorly supplied with vegetables of good quality, and our smaller cities and larger villages in many cases offer better opportunities than do our larger centers of population. The field is open.

The State College of Agriculture at Cornell University has planned its Winter Courses in Vegetable Gardening primarily to meet the needs of the commercial grower. While the work of the course is within the range of the student of little experience, the farm-reared boy, especially if he hails from a vegetable farm, will find the work of special value. The practical viewpoint is kept constantly before the student, although it is intended that he shall build his knowledge on a sound basis of science so far as this is possible in so short a time. Greenhouses and laboratories afford ample equipment for purposes of instruction. For complete information regarding details of courses and entrance, for application blanks, and for further information, address the Secretary of the College of Agriculture or the Department of Vegetable Gardening, College of Agriculture, Ithaca, New York.

WINTER COURSE IN FLOWER GROWING

Applications are now being received for the Winter Course in Floriculture, which will begin on November 11 and close on February 13. This course is a valuable feature of the college extension work. Aside from subjects that deal directly with the culture of florists' crops, students in this course may take courses in soils, plant diseases, plant-breeding, entomology, landscape art, vegetable gardening, and other subjects of like nature which touch closely the work and interests of flower-growers. The course is being strengthened yearly. It is especially valuable for young men employed in glasshouse establishments who have not had educational advantages of a broader nature. Any one interested should apply to the Secretary of the College of Agriculture, Ithaca, New York, for an Announcement of Winter Courses for 1913-1914, or should write to the Department of Floriculture.

VEGETABLE GREENHOUSE RECORDS

(Department of Vegetable Gardening)

The Department of Vegetable Gardening has on hand a supply of record books that it wishes to place in the hands of the commercial growers of vegetables under glass. The system involved enables the grower to ascertain costs of production with a considerable degree of accuracy, and requires very little attention. Persons interested should address the Department of Vegetable Gardening, College of Agriculture, Ithaca, New York.

ANNUAL FRUIT EXHIBIT

(Department of Pomology)

The Seventh Annual Fruit Exhibit of the Department of Pomology will be held at the College of Agriculture November 6 to 8. The purpose of this exhibit is to give the students in the department an opportunity to study different kinds and different varieties of fruit. Typical specimens of the commercial varieties are being collected from the important fruit-growing regions in the United States and the State of New York. This makes it possible for the students to acquaint themselves with the differences of varieties that are caused by the environment under which the fruit is grown.

The work of the exhibit is done by students. They receive the fruit, put up the exhibit, and do the judging. At the close of the exhibit the fruit is used in the laboratories for study.

Much of the fruit is donated to the College by growers who have good fruit and who wish to assist in making the exhibit a success. The Department of Pomology is glad to receive fruit from any grower in the State who has particularly fine specimens of any varieties. Fruit for this purpose should be sent by express collect to the Department of Pomology, Ithaca, New York.

DEMONSTRATION CARS

(Department of Plant-Breeding)

The Department of Plant-breeding is planning to equip two railway passenger coaches with material showing the methods and results of its work. The cars are furnished by the New York Central and Hudson River Railroad, and will be run over the Mohawk Valley and the Rome, Watertown, and Ogdensburg divisions. A schedule of stopping places is being arranged by the Farm Bureau Office of the railroad company and will soon be ready for distribution along the proposed route. There will be no regularly scheduled program of lectures, but the cars will be open for several hours at each of the stopping places and members of the department will be in attendance at all times prepared to demonstrate the exhibit and to discuss local problems of crop improvement. The trip is scheduled for the last week in October and the first two weeks in November.

THE DEPARTMENT OF BOTANY

Beginning with the opening of the college year a new Department of Botany has been organized, which is combined with the already existing Department of Plant Physiology. It is thus planned to form one comprehensive department which will cover all phases of general botany, in distinction from applied work such as plant-breeding, plant pathology, farm crops, and the like. The aim of the
is to give such instruction with relation to plant life
damental and necessary as a preparation for students
practical departments of the College. As far as time
search also will be conducted in an attempt to discove
regard to plant life which will be of use either directl
in practical work. In order to meet the needs of the
State arrangements have been made to answer queries
plants, especially in regard to weeds. Letters should be
the Department of Botany, College of Agriculture, Ithaca,
The Laboratory of Plant Physiology is planning to continue
in legume inoculation as heretofore.

For the coming year several courses in plant physiology are p
also a course in general introductory botany to be required of all
dents in the College, and a special course in forest botany for studen
in forestry. Graduate instruction will be given in systematic botany, histology, cytology, and plant physiology. It is the intention to offer many advanced courses in various phases of botany in succeeding years.

POULTRY FARM SURVEY

(Department of Poultry Husbandry)

The Department of Poultry Husbandry is desirous of obtaining information in regard to the location of persons who are especially interested in the keeping of poultry. For this purpose a post-card poultry survey of the State is being made. All persons who fill out and return the card printed below will be placed on the special mailing list to receive poultry bulletins, circulars, and reading-course lessons as they are issued. These persons will also receive special announcements of extension activities that are in progress, or are about to be undertaken, in cooperation with the poultrymen of the State, such as relate to methods of organizing poultry associations; protective poultry organizations; the holding of local poultry shows; the staging of educational exhibits; the giving of demonstrations and lectures in connection with organizations, such as poultry associations, granges, Young Men's Christian Associations; the breed-testing project; poultry farm surveys; and the like.

DO NOT WRITE HERE
Date..................................
Survey No..................................
Card No..................................
Transfer..................................
File No..................................

New York State College of Agriculture
Cornell University, Ithaca, N. Y.

POULTRY FARM SURVEY

The Department of Poultry Husbandry desires to cooperate with the poultrymen of New York State. We are making a study of the methods of organization and management of poultry farms in the State. We ask your cooperation by a reply to the following questions and the return of this card at once, either to a representative of the college or by mail. Information thus received will not be made public.

Name..................................
P. O. Address....................*County*....................
Street or R. F. D. No..................................
Acres farmed..................................
Owned or rented ?..................................
Value per acre..................................
Is your poultry business successful ?..................................

How many hens do you keep ?..................................
Ducks ?..............*Geese ?*..............*Turkeys ?*..............
What breed of hens do you keep ?..................................
Mark (X) *after the branch of poultry work which you are doing :*
Market eggs ?............*Fancy poultry and eggs ?*............
Market poultry ?............*Day-old chicks ?*............

What other business do you combine with poultry-keeping ?..................................
Are you willing to have a representative of the Department of Poultry Husbandry visit your farm ?..................

EXTENSION SCHOOLS

schools that have been conducted by the College of
eral counties of the State for the last two years have
the experimental stage and have become recognized
ain extension activities of the College. Last year on
local residents, twenty-four of these one-week schools
ere placed in as many counties. More requests were
ack of funds and of competent instructors limited the
hools that could be held.

oming year the College will continue its former practice
hese extension schools wherever the interest of the residents
it to insure the holding of a successful school. Large classes
desired. A registration of forty to sixty makes a satisfactory
ol. The average attendance in the twenty-four schools held last year was 49.7. The College asks that an advance registration of forty persons be secured before a school is placed.

The subjects to be taught in these schools depend on the type of farming in the locality in which they are held. The aim is to follow a few important lines of study throughout the week, rather than to give a smattering of a large number of subjects. The instruction is given by members of the faculty of the College of Agriculture who are particularly fitted to take up the practical problems of farmers.

The schools are held for one week, usually beginning on Monday morning and closing on Saturday at noon. The work for each day, beginning at 9 a. m. and closing at 4.30 p. m., is divided into four or five periods, two or three in the forenoon and two in the afternoon, unless local conditions are such that more convenient periods can be arranged. It is expected that each person registering for the school will attend regularly throughout the week. Special attention is given not only to lectures but also to demonstrations, discussions, quizzes, and general practice periods.

The residents are expected to furnish a suitable hall in which to hold the school, and in addition each member of the school is required to pay a tuition fee of $1.50 for the week. A community desiring one of these schools should communicate with the Department of Extension Teaching, College of Agriculture, Ithaca, New York, as soon as possible. Requests for a number of schools have already been received. Dates are scheduled in the order in which requests are received.

LECTURES AND LECTURE COURSES

For some time it has been the practice of the College of Agriculture to cooperate with communities, agricultural organizations, schools, churches, and the like by furnishing speakers for meetings wherever there is a desire for such cooperation and when the local organization or association is willing to pay one half of the traveling expenses of the lecturer. In some communities where the required number of persons cannot be found to register for an extension school, a course of lectures can be arranged as a satisfactory substitute. These lectures may be held once in two or four weeks, covering a period of three or four months. Since the College has no special staff for this work, arrangements must be made for each meeting separately; requests for speakers, therefore, should be received at least four weeks before the meeting is scheduled.

Subjects for such individual lectures and lecture courses are: improvement and methods of culture of general farm crops, such as cereals, corn, potatoes, cabbage, and alfalfa; drainage and soil management; fertilizers and soil fertility; crop improvement by breeding as applied to corn, potatoes, timothy, and the like; chemistry of soils and fertilizers; lime, and its place in agriculture, especially as related to clover and alfalfa and in spraying materials; improvement of the dairy cow; principles and practices of dairy feeding; care and management of horses; care of milk; poultry-keeping, including rearing chickens, feeding and breeding for egg production, poultry-house construction; fruit for the home orchard and garden; renewal of the neglected orchard; varieties in planting plans for the commercial orchard; grading and packing of fruits; the home vegetable garden; fungous and bacterial diseases of cultivated crops, and their control; care of the woodlot; forest planting; layout of the home grounds; the water supply in the home; domestic science, including food, household sanitation, household management, household furnishings, labor-saving devices, and the like; insects injurious to farm crops and fruit and their control; preparation of insecticides. Aside from those given, other special subjects will be taken up on request. Application for lectures should be made to the Department of Extension Teaching, College of Agriculture, Ithaca, New York.

AVAILABLE PUBLICATIONS

FEEDING AND CARE OF THE HORSE

The efficiency of the horse and the comfort with which he performs his labor depend largely on the general care and management that he receives. In view of this fact the Reading-Course lesson here discussed suggests methods of feeding work horses, driving horses, brood mares, idle horses, and young stock. The amount and kind of food required for each class of horses is given mention, as well as the order of supplying food and water, regularity of feeding, cost of the ration, and the like.

The lesson discusses the importance of proper grooming, care of teeth and feet, bedding, blanketing, and clipping. The adjustment of the harness so as to prevent sore neck and shoulders is given consideration, also proper care of the harness so as to prolong its usefulness. Information is given on the cause of bad habits and on methods of overcoming them.

For this lesson address Cornell Reading-Course for the Farm, Ithaca, New York.

CULTURE OF THE CHERRY

Cherry culture is here taken up in such a manner that the lesson should prove of value both to the commercial grower and to the farmer who desires only a few trees of this fruit for his own use. The proper soils and location for the cherry orchard are discussed and details of orchard management are taken up, including pruning, spraying, fertilization, cultivation, yields, and income per acre.

Cherries are divided into two classes, the sweet and the sour; and these classes are again broken up into groups of varieties possessing similar characteristics. A description of all the important cherry varieties for New York State is included in the lesson. The sour cherry has proved more hardy than the sweet cherry, and may be grown in any part of New York State provided proper attention is given to the selection of varieties adapted to the conditions under which they must grow.

Cherry trees may be set in fall or spring; past experience, however, has shown that in most sections of the State spring planting is attended with less risk of injury to the trees.

For this lesson address Cornell Reading-Course for the Farm, Ithaca, New York.

THE CORNELL READING-COURSE FOR THE FARM

The Cornell Reading-Course for the Farm aims to assist those who desire to read reliable agricultural literature. It provides an opportunity for those who are unable to leave their work to receive in their homes consecutive instruction on subjects of particular interest. The course is conducted by means of printed lessons dealing with practical agricultural problems. Certain lessons discuss fundamental principles which should be understood by those who wish to farm most successfully; others contain concrete suggestions or give detailed directions for the best practices. Below is given a list of available lessons, showing the arrangement by series. The number of lessons available is increased by the publication of a lesson each month which is added to the appropriate series. The new lessons are sent to all readers as issued. Enrollment in the course is by series. Each lesson is accompanied by a discussion paper that contains questions on the important points in the lesson. If the discussion paper is returned it is read carefully and a personal reply is made when information is requested. Another Reading-Course lesson in the same series is sent on the receipt of a discussion paper whether the questions are answered or not, as the return of a discussion paper indicates the reader's desire for further instruction. It is hoped that the discussion paper not only will assist the reader, but also will bring the College and the individual farmer into more personal relations. The College appreciates any expression of opinion by readers, as the experience of those in contact with local conditions enables them to present a point of view that is of much value.

AVAILABLE LESSONS FOR THE FARM, ARRANGED BY SERIES

Residents of New York State may register for one or more of the series mentioned below by addressing The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, New York.

Series		Lessons
The soil	2	The soil : its use and abuse
	42	Tilth and tillage of the soil
	50	Nature, effects, and maintenance of humus in the soil (in press)
Poultry	4	Incubation.—Part I
	6	Incubation.—Part II
	10	Feeding young chickens
Rural engineering	8	Knots, hitches, and splices
Farm forestry	12	The improvement of the woodlot
	28	Recent New York State Laws giving relief from taxatation on lands used for forestry purposes
	40	County, town, and village forests
The horse	14	Horse-breeding to increase the farm income
	46	Feeding and care of the horse
Dairying	16	Practical dairy problems
	32	Composition of milk and some of its products
Fruit-growing	18	The renewal of the neglected orchard
	22	The culture of the currant and the gooseberry
	36	Culture of red and black raspberries and of purple-cane varieties
	48	Culture of the cherry
Farm crops	20	Alfalfa for New York
	24	The rotation of farm crops
Stock-feeding	26	Computing rations for farm animals
Vegetable gardening	30	Hotbed construction and management
	34	Home-garden planning
Plant-breeding	41	Improving plants by selection or breeding
	38	Principles and methods of plant-breeding
	44	Methods of breeding oats

LESSONS FOR THE FARM HOME

The Cornell Reading-Course for the Farm Home makes it possible for any woman in New York State who cannot attend the College to receive some training in home economics. One lesson is issued each month and is accompanied by a discussion paper. The lessons at present available are as follows :

11 The laundry
13 Cornell study clubs
15 Principles of jelly-making
17 The preservation of food in the home.—Part I
19 The preservation of food in the home.—Part II
21 The preservation of food in the home.—Part III
23 Rules for cleaning
25 Saving strength
27 Choice and care of utensils
29 Cost of food
31 Household bacteriology
33 Vegetable gardening
35 The flower garden
37 Home economics at the New York State College
39 The farmhouse

AVAILABLE STATION BULLETINS AND CIR

The following bulletins and circulars of the Experimen
available, and will be sent on request so long as the supply
dents of New York State may be placed on the mailing lis
tins on one or more of the following subjects : Apples,
floriculture, general farming, grapes, small tree and bush fr
mercial vegetable culture, poultry, farm home. Address Mailing
College of Agriculture, Ithaca, New York.

Bulletins :

226 An apple orchard survey of Wayne county
229 An apple orchard survey of Orleans county
260 American varieties of beans
272 Fire blight of pears, apples, quinces, etc.
273 The effect of fertilizers applied to timothy on the corn crop following it
283 The control of insect pests and plant diseases
286 The snow-white linden moth
289 Lime-sulfur as a summer spray
291 The apple red-bugs
292 Cauliflower and brussels sprouts on Long Island
295 An agricultural survey of Tompkins county
297 Studies of variation in plants
298 The packing of apples in boxes
302 Notes from the agricultural survey in Tompkins county
305 The cause of "apoplexy" in winter-fed lambs
307 An apple orchard survey of Ontario county
310 Soy beans as a supplementary silage crop
313 The production of new and improved varieties of timothy
314 Cooperative tests of corn varieties
316 Frosts in New York
317 Further experiments on the economic value of root crops for New York
318 Constitutional vigor in poultry
320 Sweet pea studies—III. Culture of the sweet pea
321 Computing rations for farm animals
322 The larch case-bearer
323 A study of feeding standards for milk production
324 A study of the biology of the apple maggot, together with an investigation of methods of control
325 Cherry fruit-flies and how to control them
327 Methods of chick-feeding
328 Hop mildew
329 The fire blight disease in nursery stock
330 Respiration of fruits and growing plant tissues in certain gases, with reference to ventilation and fruit storage
331 The asparagus miner and the twelve-spotted asparagus beetle
332 Oriental pears and their hybrids
333 Control of two elm-tree pests
334 A study of some factors influencing the yield and moisture content of cheddar cheese
335 Scab disease of apples (in press)

Circulars :

1 Testing the germination of seed corn
3 Some essentials in cheese-making
8 The elm leaf-beetle
9 Orange hawkweed or paint-brush
14 Working plans of Cornell poultry-houses
15 Legume inoculation
16 The improved New York State gasoline-heated colony-house brooding system
17 The formation of cow-testing associations
18 Milking machines : their efficiency and sterilization
19 Late blight and rot of potatoes
20 The fire blight disease and its control in nursery stock

(Extension Circular No. 1)
A plan for a rural community center

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing-list to receive the Announcer, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

OF INTEREST TO FRUIT-GROWERS

(Department of Pomology)

Extension work.—Many *fruit exhibits* are being held in connection with grange and other meetings at this time. The department is prepared to send experienced men to judge the fruit at these meetings. A talk on the selection of fruit for exhibition may well be given in connection with the judging of the fruit. Requests for speakers on fruit topics at various meetings will be met as far as possible. In addition, pruning and spraying demonstrations will be arranged in those communities where there is sufficient demand for them.

The proper time for *pruning* is in early spring before growth starts, but it is usually the case that the grower is so busy at that season with other forms of farm work that he is unable to give his orchard needed attention. In consequence, it is often wise to do the pruning in late fall or on warm days in winter in order to lighten the rush of spring work.

The dormant spray is commonly applied before growth starts in the spring. In case of an old and neglected orchard, the infestation of scale may be so severe that an application of lime and sulfur or of an oil emulsion may well be made in the fall and repeated in spring. The department will assist in this work as far as possible. The department also wishes to encourage inquiries by mail concerning those problems that can be solved without personal inspection. This correspondence will be given prompt attention and careful consideration, with a view of making the replies accurate, complete, and practical.

The Sulzer Bill.—The grading, packing, and marketing of apples has been under way for some time. In consequence many inquiries have come to the College concerning the apple-packing and grading bill, commonly known as the Sulzer Bill, which became a law on August 3, 1912. There seems to be considerable misunderstanding concerning the provisions of this measure. The misunderstanding has arisen partly from the fact that the meaning and purpose of the bill are not clearly stated in the bill itself, and partly because persons familiar with only one or two clauses have disseminated much misleading information concerning the measure as a whole.

The Sulzer Bill is not compulsory; the grower or the buyer is not compelled to pack his fruit in conformity with its provisions. When, however, a grower or a dealer labels a barrel of apples as packed under the Sulzer Law, the fruit must conform to the provisions of that law. The measure is, then, permissive in its nature. The assumption is that it will be of advantage to both the producer and the consumer to handle fruit put up in accordance with the provisions of the Sulzer Bill, for the stamp on the barrel is a virtual guarantee that the fruit within measures up to the standard of the variety. It puts the issue squarely before the producer and the consumer as to whether or not the public shall have any guarantee concerning the uniformity and excellence of a barrel of apples. It would seem that the grower should avail himself of the opportunity afforded by this measure to secure the confidence of the consuming public, and that the consumer should be willing to pay a little more for apples to the grower who is willing to put his name on the outside of a barrel of his fruit.

Copies of the Sulzer Bill will be forwarded to persons who desire it.

Investigations.—The department is engaged in conducting tests and experiments of a varied nature on its own grounds at the College. For several years inquiries have been received concerning *the value of dynamite* in the setting of trees. There seems to be little definite and reliable information on this subject. In view of this fact, and also because of advantages claimed for this material by some persons, the department is undertaking to ascertain the true value of dynamite for the purpose. Apple, peach, and cherry trees will be set in holes that have been blasted out. Some of the trees will be set this fall and some in the spring. Some of the holes will be made this fall and allowed to settle until spring before planting the trees. A check on the whole experiment will be obtained by setting trees in the usual manner in the same field and on the same type of soil.

An experiment is being planned for testing *the value of an application of commercial fertilizer to the bush fruits and to the strawberry.* The department desires to cooperate with a number of growers in conducting similar tests in different parts of the State, and will welcome correspondence from growers with a view of arranging such experiments.

Planting Test.—The department is also seeking to find a bearing orchard in which the trees have been planted too closely—perhaps with only thirty feet or less between permanent trees. The plan is to entirely remove some of these trees in diagonal rows, to cut back others severely but allow the trees themselves to remain, and to leave other trees untouched in order to determine which method yields the greatest return for the expense involved, and in which way the largest continuous crops may be secured. In order to be adapted to this experiment the trees must be of uniform age, size, and distance of planting, and the individual rows should be of the same variety, although the orchard as a whole may contain several varieties. The department will be glad to hear from any grower who has such an orchard and is willing to cooperate with the department for a series of years sufficiently long to render the results reliable.

CLUB ROOT OF CABBAGE EASILY CONTROLLED

(Department of Plant Pathology)

Club root, a destructive disease of cabbage, occurs also on cauliflower, turnips, rutabagas, radishes, and weeds of the mustard family such as white mustard, charlock, shepherd's-purse, black mustard, and hedge mustard.

Growers are familiar with the yellowish, withered appearance of cabbages affected with this disease, and know how rarely such plants produce marketable heads. The roots of the diseased plants are greatly enlarged, are malformed, and fail to perform their function properly.

A parasitic organism called a slime mold is responsible for the diseased condition of the plant. This microscopic parasite gains entrance to the plant through root hairs or through injured parts of the root. It feeds on the cell content, and the irritation that it provokes causes the cells to increase greatly in number and in size. The parasite later transforms to a mass of spores, which are released into the soil on the decay of the affected root. The organism is reported as being able to live in the soil for a period of at least seven years and to attack susceptible plants at any time during that period.

In order to control this disease it is necessary to lime the land heavily in advance of planting. Land to be used for cabbages next year should be limed this fall with one and one half to two tons of quicklime per acre. The best results are obtained when the liming is done eighteen months in advance of planting. Ground limestone or air-slaked lime may then be used.

It is especially necessary to keep the seed bed free from the parasite. Plants from infested soil should never be set.

In keeping the farm free from this parasite the following suggestions should be observed:

Destroy affected roots as far as possible.
Boil affected roots before feeding them to stock.
Avoid applications of manure in the fall preceding a crop of cabbages.
Avoid transfers of infested soil.
Drain the land thoroughly.
Cultivate clean, destroying all cruciferous weeds.
Rotate crops.
Set healthy plants.
Apply lime to soil as indicated above.

FARMERS' WEEK

The seventh annual Farmers' Week will be held at the New York State College of Agriculture at Cornell University, Ithaca, New York, February 9 to 14, 1914, inclusive. This meeting has come to be the big event in agricultural circles in the State each year. It is a week of lectures, demonstrations, and discussions arranged for the benefit of those who cannot come to the college for more than a few days. Last year there were in attendance, during the week, over three thousand persons, who came from every county in New York State and from near-by States.

The feature of interest to many persons is the opportunity afforded to attend the sessions of many of the state associations that hold their annual meetings at the College at this time. Last year the following organizations convened at the College during the week: The New York State Drainage Association; Cornell Dairy Students' Association; The Home-makers' Conference; The New York Plant Breeders' Association; The New York State Country Church Conference; The Students' Association of the New York State College of Agriculture; The New York State Federation of Floral Clubs; New York State Rural Engineering Society; The New York State Vegetable Growers' Association; and the Conference of Poultry Associations. A cordial invitation is extended to these and other associations to hold their meetings at the College during the approaching seventh annual Farmers' Week. Suitable rooms will be provided for such meetings.

The exhibits arranged by the several departments of the College have become a strong feature of the week's work. The exhibits show the latest results of experiments in practical farm problems, and also the best farm methods and practices. Dairy and general farmers will be especially interested in the stock show and sale.

The program of lectures and demonstrations by members of the faculty, by farmers, specialists, and others who have achieved success in agriculture, will be arranged so that a definite and connected line of work may be followed throughout the week. For example, one may follow a series of lectures and demonstrations on home economics, fruit-growing, general farm crops, dairying, and the like, or he may devote his entire time for the week to general economic, social, and educational questions. Opportunity will be afforded each person to take an active part in the discussions, conferences, and demonstrations which mark the week as a school rather than as a series of lectures.

Last year many organizations, such as granges, reading-course clubs, farmers' clubs, and the like, sent delegates to Farmers' Week who were instructed to take careful notes and make a general report to the home organization at a subsequent meeting. This is highly commendable, since it will bring information and new vigor to the home organization and will make the work of lasting value to the community. The organization usually pays the expenses of the delegate. This question may well be considered seriously by every organization in the State. Delegates will receive every attention possible in order to make the visit profitable.

The expense of a trip to the College for Farmers' Week need not necessarily be high. Much depends on the personal taste of the individual. Good accommodations will be provided for all guests in private homes about the city and in the hotels. Very comfortable lodging can be procured for seventy-five cents to one dollar per night. Meals can be obtained in the cafeteria of the Home Economics Building at regular cafeteria prices. Reduced rates on the railroads will doubtless be granted as in previous years. The full program of the week will be available about the first of January, persons desiring copies of it should address the Department of Extension Teaching, New York State College of Agriculture, Ithaca, New York.

FARMERS' WEEK.—DEPARTMENT OF SOIL TECHNOLOGY

The principles and methods of drainage will be discussed in the two-days session of the New York State Drainage Association, in which many practical phases will be considered both by men in the College and by farmers of experience in such work.

Lectures will be given on the subject of lime, with particular reference to the chemistry of the different forms of lime in relation to their use on the soil; on the maintenance of organic matter in the soil; on commercial fertilizers; on soil surveys, their character and use; and on field-plot work, including a discussion of results obtained on the university farm, and of the necessity for the methods of, and of the limitations in, field-plot work in the State, as a means of solving problems of soil management.

EXTENSION SCHOOLS IN HOME ECONOMICS

The Department of Home Economics is prepared to conduct fifteen extension schools, each of one week duration, in those sections of the State where interest is sufficient to insure the regular attendance of at least twenty-five women. In some places the schools will be held in connection with the schools in agriculture, and in other localities the school in home economics alone will be held.

In general the program will consist of lectures and demonstrations on foods and will occupy a half day throughout the week. An instructor will be sent from the department with equipment necessary for these demonstrations. A fee amounting to seventy-five cents for each member is charged for the week's work. The fee is to cover the cost of material used. Last year the department conducted nine of these schools. They were well attended and great interest was shown in the scientific study of home-making.

SOIL SURVEY OF JEFFERSON COUNTY

The report on the soil survey of Jefferson county has just been issued by the United States Department of Agriculture. This survey was made in cooperation with the Department of Soil Technology of the New York State College of Agriculture. Copies of the report can be obtained only from the Congressman for the Twenty-eighth District of New York State and from the United States Department of Agriculture; the latter makes a charge of twenty-five cents per copy.

The report, descriptive of the soil and agricultural conditions and covering eighty-three pages, is accompanied by colored maps representing the distribution of the types of soil. The maps are made on a scale of one inch to a mile.

Jefferson county is situated in northern New York at the eastern end of Lake Ontario, on the St. Lawrence River. The county includes many of the Thousand Islands and has an area of 1281 square miles, or 819,840 acres.

The topographic features of the county are varied. The southeastern section constitutes a high-hill area, the remainder being lake and river lowlands. The former varies in elevation from 700 to about 1700 feet. Conspicuous topographic features are the level plains of clay, flat areas and ledges of limestone and sandstone, shale gorges or gulfs, and knobs of primary rock.

The drainage of the area is through the St. Lawrence River. The largest stream in the county is the Black River, the second in point of size the Indian River. Numerous water powers are developed along these two rivers. A group of picturesque lakes occurs in the vicinity of Redwood.

Settlement of the area commenced soon after the Revolutionary War. The county was organized in 1805, and in 1910 it had a population of 80,382. Watertown, the county seat, has 26,730 inhabitants. There are nineteen other incorporated towns within the county.

Climatic conditions in the area vary widely. The annual mean temperature is about 45° F. Precipitation is heavier in the southern section of the country, which receives 48.19 inches annually as compared with 33.99 for the northern section. The heaviest snowfall occurs south of the Black River. The ordinary length of the growing season is one hundred and forty to one hundred and forty-five days.

Hay is the chief commercial crop of the county, nearly one half of all the improved land being devoted to its production. The quality is excellent and the yield generally satisfactory. Jefferson county is one of the leading counties in the United States in the production of this crop.

Dairy farming ranks with hay production as one of the leading forms of agriculture in the area. The census of 1910 showed 107,394 head of dairy stock in the county, valued at $3,618,740.

The soils of the county are greatly diversified. Thirty-nine soil types were separated and mapped. These were classified into three principal groups—glacial soils, lacustrine soils, and cumulose soils—together with some soils of miscellaneous character and mixed origin. In addition, the underlying rock is exposed at the surface in many places and cuts up the area of agricultural soil. In the northern part of the county the rock is of a granitic nature. In the central and southwestern parts it is limestone, and in the southeastern part it is shale.

The lacustrine group, represented principally by the Vergennes series, is by far the most extensive. The soils range from a heavy clay to light-textured sands and gravelly loams, formed by deposition in quiet waters of the ancient glacial Lake Iroquois. The Vergennes clay is in need of drainage. It is preeminently a hay soil, the crop for which it is chiefly utilized. The silt loam, like the clay, is a good grass soil and is also well adapted to many of the heavier farm crops and to canning crops. The loam and the fine sandy loam are used for the production of hay and for general farming. The latter is particularly adapted to alfalfa. Farms on this type command a good price.

The Clyde soils are closely associated in position with the Vergennes series. They are black soils occupying the sites of former local lakes or ponds, and are usually poorly drained. The clay is a good hay soil, while the fine sand and the fine sandy loam are better adapted to truck.

The Adams soils occur associated with the Vergennes soils, having been deposited in Lake Iroquois as delta material. They are light brown in color and possess loose, porous subsoils. Much of the sand and some of the fine sand is so leachy as to be of little agricultural value.

The Rodman soils are sandy, gravelly, and stony in character and are so uneven in topography and so droughty that their agricultural value is low.

The glacial till soils occupy the upland. They are generally undulating, or gently rolling, in topography, and their surface drainage is usually good. They are represented by various members of the Ontario and Worth series. The Ontario fine sandy loam is one of the most important types in the county and is of high agricultural value, good yields of corn, potatoes, and hay being obtained. The Ontario soils are formed from glacial till containing a considerable percentage of limestone, and have a calcareous reaction. In this respect they are superior to the Worth soils, which are developed in the shale hill section in the southern and southeastern part of the county and are deficient in lime. A lower standard of farming is maintained on the Worth soils, and more waste land is to be seen. The heavier-textured types, however, are fairly well suited to dairying and general farming.

The Farmington silt loam is a smooth, partially modified, glacial till soil resting on limestone. It is a good hay and grain soil.

The Cossayuna fine sandy loam is a type of mixed residual and glacial origin and is rather extensively developed. Some of the crops grown are not well adapted to the soil.

The Allis silty clay is best fitted for the production of hay and small grains because of its heavy texture.

The Papakating soils are developed in low, poorly drained areas along sluggish streams, and are subject to occasional inundation. They appear to be of mixed alluvial and lacustrine origin. With the establishment of drainage these soils are of considerable value: the silt loam for hay and heavy farm crops, and the fine sand and fine sandy loam for the heavier varieties of truck and garden produce.

Muck is a valuable soil for heavy truck, celery, onions, cabbage, and the like, when properly drained.

Such miscellaneous types as Meadow, Marsh, Dunesand, Beach sand, have little present value save for a small amount of pasturage.

The soils and agricultural conditions in Jefferson county are representative of large areas of land in the St. Lawrence and Champlain valleys.

PUBLICATIONS AND STUDY CLUBS

CULTURE OF THE BLACKBERRY

The culture of the blackberry is receiving constantly increasing attention at the hands of both the commercial grower and the farmer who desires only a few plants for the family garden. This circular—Farm Reading-Course Lesson Vol. III, No. 52—has been prepared in order to meet the growing demand for information concerning this fruit, and it marks the completion of a series of lessons on the culture of the bush fruits.

The factors of location, soil, preparation of the ground, planting, pruning, fertilization, cultivation, and harvesting are considered and discussed. Illustrations are included, emphasizing many of the above factors. A description of the more important varieties is also given in order that the grower may become familiar with the characteristics of each before purchasing. Descriptions of the common insect enemies and diseases, and methods of their control, are also given. The lesson will be available for distribution about the middle of November.

BULLETIN 335—SCAB DISEASE OF APPLES

This bulletin treats extensively of the scab disease of apples, covering the various features of the disease, its cause, and its control. Each phase is treated from an historical standpoint, the author's observations and experiments are then recorded, and a general summarization of the work bearing on each part follows. The apple-grower will find here much information of a fundamental nature, on which to base a rational method of control. Of particular importance may be mentioned the parts dealing with the overwintering of the scab fungus; the method and source of early spring infection; and the correlation between infection periods and weather conditions The author's extensive experiments on control are summarized and directions for preventing the disease are given. A complete list of references to the literature of the subject is appended, showing the sources from which information was gathered and furnishing additional material for those who may wish to continue their study of the disease.

RULES FOR PLANNING THE FAMILY DIETARY

"Rules for Planning the Family Dietary" is the title of a new lesson in the Reading-Course for the Farm Home.

For the housekeeper who has the happiness and efficiency of her family at stake the problem of preparing three meals each day all the year round is perplexing. In the new lesson suggestions are given, which should assist the housekeeper in balancing the family dietary so as to supply in the meals of each day, in the form best suited to the individual, all substances that are needed to build the tissues, bones, muscle, nerve, and blood; to yield energy for the day's activities; to keep the body functioning properly. Those foods are discussed which best serve certain food needs, such as milk, eggs, meat, legumes, cereals, for the growth of living tissue; cereals, legumes, fats, sugars, and starches for yielding energy; milk, legumes, and whole cereals for supplying lime; eggs, legumes, oatmeal, vegetables, and fruits for supplying iron.

The main part of a meal should consist of simply prepared, mild-flavored, nonstimulating, and easily digested foods. Milk should be used liberally in order to replace a part of the meat in the average dietary because, of all foods, it is richest in lime.

Eggs should be used as long as they can be afforded.

Water should be consumed in quantities in order to keep the body in clean, wholesome condition within as well as without.

Fruits and vegetables should be used most liberally.

Cereals and cereal foods that include most of the outer layer of the grain should largely replace those that have had the outer layer removed.

Age, vigor, and activity should determine the strength of food to be eaten by each individual.

CORNELL STUDY CLUBS

Cornell Study Clubs are local organizations of farmers and their families, intended to promote the study of Cornell Reading-Course lessons. One of the chief benefits of these clubs is that they furnish an opportunity and an incentive for study. Often a helpful lesson will reach a farm home at a time when the members are too busy to give it attention and it is soon forgotten. If, however, a special time is set aside for a study of Reading-Course lessons at a club, it is likely that much more reading will be accomplished. The secondary purpose of Cornell Study Clubs is to increase a neighborly feeling in the community and to offer an opportunity for an exchange of thought on subjects of common interest. In the meetings of a club the members should find enjoyment in an interchange of ideas and a training for free and orderly self-expression.

The organization of a Cornell Study Club can be easily effected, even if at first only half a dozen persons desire to form a group. The president and the secretary of the club should be chosen, and the dates and places for meetings decided upon. The meetings should be held frequently enough to maintain an active interest in them ; regularly every two weeks during the fall and winter is usually considered sufficiently often. If it is not advisable to meet every fortnight in spring and summer, monthly meetings are suggested. Study Clubs hold their meetings in churches, grange halls, and at the homes of the members. The meetings should proceed under a definite order of business.

Each Study Club should first become fully informed as to the material available in the two Reading-Courses. (Address Cornell Reading-Courses, College of Agriculture, Ithaca, New York.) The Reading-Course for the Farm discusses farm practices and important rural problems. The Reading-Course for the Farm Home takes up such household subjects as sanitation, foods, household management, and household furnishing. If the Study Club is composed of men, the lessons for the farm will probably prove of most value. The interest shown in the study of these lessons will depend largely on whether they are related to local agricultural conditions and whether they deal with operations in progress at the time of year in which they are being discussed. If the club is composed of both men and women the lessons in the two courses may be alternated, or two separate groups may be formed holding part of the program in common. If the club is composed of women, a number of valuable suggestions will be found in Reading-Course Lesson for the Farm Home, No. 13, "Cornell Study Clubs." The clubs are most successful when the programs are planned carefully several weeks in advance and leaders are selected to be responsible for the success of each meeting. The Supervisors of the Reading-Courses will be pleased to suggest reference books and bulletins to leaders who desire additional material for study. Reading-Course lessons should be distributed to the members of the clubs at least one week in advance, so that the members may be prepared for a general discussion which should follow the opening talk given by the leader. The success of Cornell Study Clubs must depend mostly on local leadership. It is hoped that public-spirited persons will find in the Cornell Study Clubs a means of improving the material and social conditions in their communities.

Whenever desired, study clubs may be conducted in connection with the educational work of granges, churches, schools, and local agricultural societies. The following three ways are suggested in which Reading-Course lessons may prove valuable to a Study Club or to any other organization :

1. For study by the entire membership previous to general discussion at a regular meeting.

2. To aid leaders in preparing for a program at a regular meeting.

3. For reference. A set of available lessons may be obtained for use by a Study Club or for the library of any church, school, grange, or recognized agricultural organization.

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ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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W. A. Stocking, Jr., Acting Director A. R. Mann, Editor

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

FARMERS' WEEK—1914

SUMMARY STATEMENT OF FARMERS' WEEK 1913

Statement is made at this time of the statistics for Farmers' Week last year, in order to indicate to those who were not present the nature and extent of Farmers' Week activities. The plans for the coming Farmers' Week, which is to be held from February 9 to February 14, give promise of a better and more comprehensive program than any heretofore presented. The attendance has shown a steady increase through the last six Farmers' Week gatherings. Some statements of the plans of different departments of the College are given in this issue of the Announcer. More detailed statements will appear in the January issue, and the February issue will contain a copy of the program. The following are the figures for the Sixth Annual Farmers' Week, held last year:

Total registration for Farmers' Week, 1913..............2,409

(It was impossible to register all the visitors, but it is estimated that 3,100 were in attendance during the week)

	Number of lectures	Number of demonstrations	Contests and competitions	Practice classes
Monday..............	32	..	1	4
Tuesday..............	59	2	3	4
Wednesday...........	67	3	1	0
Thursday.............	61	3	2	4
Friday................	52	2	3	4
Saturday.............	13	..	..	..
Totals..........	284	10	10	16

In addition to the sixteen laboratory practice classes listed above, which were conducted by the Department of Poultry Husbandry, the Department of Home Economics conducted an extension school in laboratory practice from Tuesday to Friday inclusive.

Number of conventions and conferences......................17
- Drainage Convention
- Dairy Students' Association
- Federation of Floral Clubs Conference
- Home-makers' Conference
- Plant Breeders' Association
- Poultry Association Conference
- Rural Engineering Conference
- Rural Church Conference
- Rural School Education
- Students' Association Conference
- Vegetable Growers' Convention
- Experimenters' League Conference
- Rural Cooperative Credit Conference
- State Institutions Farm Managers' Conference
- Agricultural Speakers' Conference
- Boys' Conference
- Fruit Growers' Conference

Number of exhibitions by departments.......................16
- Animal Husbandry
- Books
- Dairy
- Entomology
- Farm Mechanics
- Forestry
- Home Economics
- Horticulture
- Plant-breeding
- Plant Pathology
- Plant Physiology
- Potato Show
- Poultry Husbandry
- Rural School Education
- Soil Technology
- Weather Bureau

DEPARTMENT OF RURAL ENGINEERING

The newly organized Department of Rural Engineering embraces the subjects of farm mechanics, farm engineering, and farm structures. Exhibits in each of these lines will be held in the Rural Engineering Building throughout Farmers' Week. In farm mechanics, compressed-air water systems and the regular apparatus used in the college instructional work will be shown; in farm engineering there will be an exhibit of drain tile, including samples of different makes available on the market and samples showing the effect of freezing on soft-burned and on hard-burned tile; in farm structures there will be shown models of fence-bracing and of barn frames.

Announcement will be made later of consultation hours, when representatives of the different branches of rural engineering will be in their offices for the purpose of discussing with visitors their special problems.

NEW YORK STATE RURAL ENGINEERING SOCIETY

This organization, which is devoted to the study of the engineering problems confronting the farmer, will hold its third annual meeting during Farmers' Week. The program of addresses and discussions will be given in the Announcer for January.

VEGETABLE-GARDENING EXHIBIT

A new headhouse and greenhouse are under construction for the Department of Vegetable-gardening. These buildings will be completed in time for Farmers' Week, and will be used at that time for a comprehensive exhibit of interest in connection with home and commercial vegetable production. Methods, equipment, and materials for the growing of early plants, tools for the garden and the vegetable farm, hotbed and cold-frame construction and management, home-garden planning and management, will all have place. Other features will be announced later. Practice work of both regular and winter-course students in plant-growing and vegetable-forcing will be shown.

Home-garden Day.—Too many growers are neglecting the home vegetable garden. Such a garden offers great possibilities to dwellers in both town and country, by lightening the load of the family income and by increasing the load of good things on the family table. Friday of Farmers' Week will be Home-garden Day. The morning periods will be devoted to lectures and round-table discussions on the planning, planting, and management of the garden; the afternoon will be given over to practical demonstrations in plant-growing and in hotbed construction and management. The detailed program will appear in the Announcer for January.

NEW YORK STATE VEGETABLE GROWERS' ASSOCIATION

The New York State Vegetable Growers' Association will hold its fourth annual meeting at the New York State College of Agriculture during Farmers' Week. The days for the meeting are February 10 to 12. The program is to consist of lectures, round-table discussions, and demonstrations on topics of interest to commercial vegetable producers. The interests of the market gardener, the truck farmer, the muck-land grower, and the greenhouse man will all be remembered. Growers who have attended in the past find these meetings full of information, inspiration, and enthusiasm. The growers of the State are gradually being enlisted in the association, and its usefulness is broadening each year. For full information regarding the program and regarding the work of the organization, address the Secretary, Paul Work, Ithaca, New York.

HOME-MAKERS' CONFERENCE

The Department of Home Economics conducts a Home-makers' Conference during Farmers' Week, February 9 to 14 For several years a large number of women have been at Cornell during Farmers' Week. Lectures and demonstrations have been presented on the subjects of foods, sanitation, household art, and household management. This year the conference will open at two o'clock on Monday afternoon and continue until Saturday noon. Lectures will be given by members of the department staff, and by outside lecturers. Throughout the week there will be exhibitions of work done by the regular students of the department. An extension school will be conducted during five days of the week for residents outside of Ithaca who wish to take courses in food preparation. Persons desiring this work should register for five sessions, giving a half day for each session; applicants should indicate whether they desire to take the work in the forenoon or in the afternoon. The food laboratories in the Home Economics Building will be used for this purpose.

The singing will be in charge of Mrs. Rose Morgan. Mrs. Morgan will also lecture on music in the home.

Organizations in which home economics is an essential subject are urged to make the Home Economics Building their headquarters during Farmers' Week. Opportunity will be given for meetings of different organizations having under consideration domestic science or subjects pertaining to home life. Officers of such organizations should correspond with the Department of Home Economics in order to make arrangements for such meetings.

POTATO SHOW

The Department of Farm Crops at the New York State College of Agriculture is making plans for a larger and better educational exhibit of potatoes during the coming Farmers' Week than has ever been held before. Notable among the potato shows held at the College during recent years were those of 1911 and 1913. The success of the last exhibit may be attributed in great part to the seventy-three growers who took part.

There is a growing interest, among colleges and experiment stations, in more classified knowledge of both type and market qualification. Advancement along this line must come largely through cooperation with the potato-growers themselves.

This year, therefore, the show will be arranged mainly to emphasize the educational features. Most of the arrangement of the exhibit will be in the hands of committees of students who are taking work along this line. The classes will include individual plate exhibits of standard-named extra early, medium early, and late varieties; the best five plate collections of each of the above varieties; and the largest collection of single plates of any named varieties. Five specimens constitute a plate exhibit. All transportation charges on entries will be met by the Department of Farm Crops.

The judging will be done by competent State Fair judges who will base their opinion largely on trueness to type and on market demand. Premiums will be awarded in each class, and both premium and official score card will be returned to the exhibitor. At the close of the exhibit the entries become the property of the College unless otherwise requested.

In connection with the potato show proper, economic phases of potato culture—such as the study of potato diseases and their control—will be demonstrated.

Further information may be obtained by addressing the Department of Farm Crops, College of Agriculture, Ithaca, New York.

DEPARTMENT OF DAIRY INDUSTRY

During Farmers' Week the Department of Dairy Industry will give lectures and demonstrations in all branches of dairy manufacture. These will include talks on butter-making and cheese-making; the care and handling of market milk; the testing of dairy products; and the relation of bacteria to clean milk. During each afternoon the students in the Winter Course in Dairy Industry will be working in the laboratory, making butter and cheese and testing dairy products. This laboratory work will be under the supervision of instructors, and will demonstrate to visitors the proper methods of manufacturing and handling dairy products. In the bacteriology laboratory there will be an exhibit of bacteria growing in plates and jars containing dairy products that have been acted upon by the bacteria. This exhibit will be in charge of a member of the department, who will explain the various parts of the exhibit and also the relation of bacteria to practical dairy work. The various problems in dairy industry will be taken both from the standpoint of producers and from that of creamerymen. A special effort will be made to interest milk producers in the different ways of disposing of their products to the best advantage.

DEPARTMENT OF ENTOMOLOGY

The injurious insect pests of orchard fruits and of the principal forage plants will be discussed at different periods during Farmers' Week. Special attention will be paid to various methods of fighting these pests. The lectures will be illustrated with actual specimens of the insects and of their work.

For the past two years the department has engaged for Farmers' Week a specialist in bee culture, who has given a series of lectures and practical demonstrations on the care and handling of bees, the production and marketing of honey, and other matters relating to apiculture. This practice wil be continued this year. Those interested in bees have heretofore found these lectures and demonstrations of great interest.

A feature added last year, in the nature of an educational exhibit, proved so satisfactory that the department will repeat it this year. The exhibit will consist of: insects injurious to fruits, vegetables, staple crops, and the like; animal parasites and insects in relation to diseases of man and of animals; common moths, butterflies, beetles, and the like, and collecting apparatus of interest in nature study. Transparencies as well as mounted insects will be shown. The exhibit will occupy a large laboratory, and will be attended by several members of the department who will explain it to visitors.

DEPARTMENT OF FARM MANAGEMENT

The Department of Farm Management proposes to exhibit during Farmers' Week sets of cost accounts that have been kept by farmers. The methods and results will be explained to all who are interested. At all times a member of the department will be ready to give instruction or advice in the keeping of farm accounts. The farm-survey method of studying the efficiency of a farm business will also be explained. Farmers may learn how to figure their labor incomes, and how to study the effect of size of business, diversity, and production on profits. Records of successful farms will be shown, so that one may see in what respects his business differs from that conducted on such farms.

DEPARTMENT OF FORESTRY

For Farmers' Week the Department of Forestry is arranging for lectures, demonstrations, and an exhibit showing phases of forestry of particular interest to farmers. The subjects to be discussed are as follows: the farmer's interest in forestry, forest protection, forest planting, the uses of various kinds of wood, the preservation of farm timbers, the determination of the value of farm wooklots, the care and protection of farm woodlots. Demonstrations are to be arranged in connection with the lectures. The department proposes to show an exhibit which will include a small open-tank wood-preservation plant for preserving posts and poles. The plant to be exhibited represents such a plant as would be of particular value to the farmer. In addition to the above, illustrated lectures will be given showing various phases of forestry, including forest protection, forest planting, lumbering, uses of different kinds of wood, and other subjects of interest to the farmer.

DEPARTMENT OF POMOLOGY

This year the Department of Pomology is making preparations for Farmers' Week with a view of covering the more important phases of fruit-growing. This will be done by means of lectures and demonstrations. Inasmuch as the majority of farmers who come to the College at this time are engaged in general farming, not confining their attention to the growing of special crops, the department will present its material in such a manner as to render it of value to the man on the general farm. The lectures will be practical and will be illustrated and emphasized by means of charts and lantern slides. One of the most important orchard problems confronting the general farmer is the care of the old orchard. There are many of such orchards throughout the State, which if given a little care would return a fair measure of profit to the owners instead of being dead losses on their hands. The conditions under which it pays to undertake the renewal of such orchards, and the methods by which this work may be accomplished when desirable, will be outlined. Every farmer is interested also in a good fruit garden for family use. The proper varieties of the various fruits for planting in such a garden, together with planting plans, will be given in a special lecture. The business and marketing side of fruit-growing will not be neglected; this will be treated by a practical grower who has given the matter special attention. The department will maintain open offices throughout the week, where visitors and persons desiring information will be made welcome.

GENERAL ANNOUNCEMENTS

COOPERATIVE EXPERIMENTS WITH VEGETABLES

The Department of Vegetable-gardening, which has only recently been organized, is planning to establish experiments with vegetable crops as rapidly as demands arise and funds permit. These experiments will be planned to meet the needs of particular localities. Those who are interested in such work should communicate at once with the department, as plans for next year are going forward.

PRIZES FOR REPORTS OF EXPERIENCE IN FARM DRAINAGE

In order to collect data showing the condition of soils that have been tile-drained, the arrangement of the system used, and the results that may be expected from underdrainage on different soils, prizes are offered by the New York State Drainage Association for reports on such work. This association is in close cooperation with the Department of Soil Technology at Cornell University. A circular describing the conditions of the competition may be obtained from the secretary of the association, Professor Elmer O. Fippin, Ithaca, New York.

Many farmers in New York have had long experience with tile drainage and know what it has done for their crop yields and their profits. But there are many other farmers whose land is wet and needs drainage, and who hesitate to proceed with the work of drainage because they question its value. The specific experience of farmers who have drained land under the same condition would be very helpful to these doubting persons. We appeal to farmers to aid their co-workers. The reports of the State Drainage Association afford an excellent means of disseminating information, and the prizes are an added distinction ot those who have achieved success in drainage. Two sets of prizes are offered: (A) For large farms of two hundred acres or more on which at least one thousand five hundred rods of tile have been laid; valuable silver cups are offered as prizes in this class. (B) For small farms on which at least five hundred rods of tile have been laid; three medals of gold, silver, and bronze constitute the prizes for the best three papers.

The reports should cover the following points: (1) The condition of the land when operations were begun. (2) The general character of the soil. (3) The arrangement and extent of the drainage system. Either an accurate map to scale, or a general sketch map showing drains, should accompany the report. (4) The special features observed in the construction of the drainage system, including the kind of tile used, method of grading, method of construction, depth, and the like. (5) Cost of drainage. (6) Influence of drainage on crop growth. (7) Summary of benefits derived from the drainage system.

Papers may be submitted to the secretary at any time before January 15. A circular describing more completely the conditions of the competition may be obtained from the secretary.

In Volume I of the Proceedings of the New York State Drainage Association there are contained eighty-five pages of practical data on many phases of drainage work, and also the papers and discussions presented at the meetings of the association in 1910 and 1911. This volume may be obtained from the secretary for twenty-five cents, postage paid.

PUBLICATIONS

BULLETIN 336—DISTRIBUTION OF MOISTURE AND SALT IN BUTTER

Butter is a manufactured food; consequently it must come under the control of the Government. Moisture is the constituent that is regulated, and naturally its variation is studied with more interest by the maker of the butter, the dealer, and the government authorities. The bulletin here discussed is the result of analyses of fifty-one packages of butter, from each of which samples were taken.

NATURE, EFFECTS, AND MAINTENANCE OF HUMUS IN THE SOIL

The farmer who farms his land, and does not merely exploit it, must give special attention to the maintenance of a good stock of organic matter in his soil and to conditions favorable for its change into humus. This subject is treated in Lesson No. 50 of the Cornell Reading-Course for the Farm.

In the mind of the experienced farmer, a dark color of the soil is usually associated with a higher degree of productiveness than is a light color. The color of the soil has a fundamental significance, since it indicates the quantity and the form of organic matter in the soil and the general condition of the soil with respect to its productive capacity. The best form of organic matter in the soil is that popularly termed humus, which is not a definite chemical compound, as was formerly supposed, but is a complex mixture of organic materials derived by the partial decay in the soil of plant and animal substance. Humus represents the chief part of the organic matter and combines favorably with the mineral particles of the soil.

There are three groups of effects of humus on the soil, which contribute to productiveness. These are physical, chemical, and biological. Physically, humus improves the granular nature of the soil and thereby the tilth. The result of improved tilth is a better relation to soil moisture and better ventilation. The darker color resulting from the humus causes a greater absorption of the heat of the sun and consequently a higher temperature. Chemically, humus is the chief store of combined nitrogen in the soil. It also furnishes other forms of available plant-food, and it increases the availability of plant-food in the mineral particles of the soil. Biologically, humus promotes the growth of micro-organisms and through these may add to the stock of combined nitrogen that comes into the soil.

The amount of organic matter, including humus, in the soil varies greatly—from less than .5 per cent in sandy upland to 5 or 10 per cent in dark-colored swampy soil and 65 to 85 per cent in peat and muck soil. Subsoils contain less than do topsoils, sandy soils less than clay soils, and dry soils less than wet soils.

The maintenance in the soil of the stock of organic matter, especially the humus form, is one of the chief problems of the farmer in the management of his land. It is accomplished in several ways, and the method to be chosen must be determined by the system of farming and by the surrounding conditions. The means available are : (1) Crop residues, including roots and such parts of the stems, leaves, and fruit as may not be removed. (2) The rotation of crops, which makes a better use of the capacity of the soil and may result in the production of larger residues. (3) The growing and plowing under of crops for manurial purposes. Often such crops may be inserted between the regular crops in a rotation. Leguminous plants are preferable to non-legumes, and inoculation of the former with the proper type of nitrogen-gathering organisms may be helpful. (4) Stock manure, which is one of the most common and useful materials for maintaining the supply of humus in the soil. The deficiency in the supply of manure is the chief difficulty of the farmer in this direction. (5) Fertilizer materials and other forms of waste which may contain organic matter and therefore may be useful for the production of humus. Fertilizers are an expensive source of organic matter for the soil.

Muck and peat may be used as manure, but should be applied with caution until the efficiency of any particular deposit has been demonstrated by field trials.

THE BOX LUNCHEON

To the band of workers and school children who must depend daily on the box luncheon for nearly one third of their food supply, the preparation of this luncheon is very important. The choice of food for the box luncheon is discussed in Lesson No. 43 of the Cornell Reading-Course for the Farm Home. Possibilities and variety are suggested in a list of available foods. Emphasis is laid on selection of food for school children. A few menus suggest types of luncheons for persons of various ages and occupations. Then follow suggestions regarding appetizing food. A few recipes are given for the preparation of food suitable for box luncheons. Many foods are inconvenient to pack or do not appeal to the appetite when eaten from a luncheon box, hence the choice is limited.

Packing the luncheon is also considered. The box, as well as the food, should be attractive. The most nutritious food will fail to make an appeal if not attractively put up. A score card is suggested by which luncheon boxes may be judged.

HINTS ON CHOOSING TEXTILES

This lesson, No. 45 in the Reading-Course for the Farm Home, treats of common fibers and the fabrics manufactured from them, adulterations and their tests, and general matters that are helpful in the purchase and use of common textiles. In former times family textiles were manufactured mainly in the home and the best products of the farm went into their making. As population increased and economic conditions changed, these industries were taken from scattered homes and centralized, in factories, where the introduction of complicated machinery and systematized methods greatly increased the output and decreased the cost of manufacture. Woman has accepted this release from responsibility, and too often has allowed the change to free her from all care as to the value of the product that she must use in clothing the family and in furnishing the home. One result of this indifference has been the license taken in placing on the market materials of inferior quality, misnamed and deceptive in appearance. A general knowledge of the manufacture and the adulteration of textile fibers is necessary in order that the housewife may obtain better value and better satisfaction for the time, money, and energy expended in their purchase.

A CANNING BUSINESS FOR THE FARM HOME

In Lesson No. 47 of the Reading-Course for the Farm Home is described a canning experiment on a New York State farm. Members of the Department of Home Economics at the New York State College of Agriculture will give instruction as to methods, use of equipment, and principles of preparation. There are many weeks during the summer months when boys and girls on the farm might be occupied in conducting a canning enterprise which would bring money return, business experience, and training. Following the example of Southern States in which canning clubs have been organized by the Federal Government, the Department of Home Economics at the New York State College of Agriculture is ready to organize canning clubs within the State of New York, assist in giving instruction, standardize goods, and teach the principles of marketing the products of the club.

HOUSEHOLD INSECTS AND METHODS OF CONTROL

Insect pests and their economic importance are discussed in Lesson No. 49 of the Reading-Course for the Farm Home. The loss of over a million dollars annually from these pests is a sufficient reason for study by the housewife, who in a large measure has the power of control over their ravages. Formerly we have considered their economic importance in connection with their tax on things that man produces. Within the last decade insects have assumed a new significance through their direct injuries to man himself.

Suggestions are given as to the most practicable methods of preventing the injuries caused by these pests. The house fly and its relation to disease, the mosquito, the bedbug, the cockroach, the ant, the clothes moth, the flea and the beetle, all suffer in this discussion of household insects and methods of control.

THE CHRISTMAS FESTIVAL

A Christmas greeting is sent from the Reading-Course for the Farm Home to its readers through Lesson No. 53. The story is told of Christmas and its festivities. It is a season of Christmas sympathy and general hospitality. It is "the season for gathering together of family connections, and drawing closer, again, those bands of kindred hearts, which the cares and pleasures and sorrows of the world are continually operating to cast loose; of calling back the children of a family who have launched forth in life, and wandered widely asunder, once more to assemble about the parental hearth, that rallying place of the affections, there to grow young and loving again among the endearing mementos of childhood."

Traditions and customs of the Christmas season are described. The strenuous period of gift preparation and the giving of soulless gifts are discussed. Santa Claus, and the Christmas tree with Christmas decorations within the reach of all, are given attention. There are standard recipes for Christmas pies, Christmas puddings, Christmas candies. The bulletin ends with a Christmas carol, "Silent Night."

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FARMERS' WEEK—FEBRUARY 9-14, 1914

SPECIAL RAILROAD RATES

The Delaware, Lackawanna, and Western Railroad and the Lehigh Valley Railroad offer special reduced rates to Ithaca during Farmers' Week, as follows: one and one half cent per mile for the round trip in each direction from all points in New York State except New York City, tickets to be sold February 9 to 14 inclusive, limited to return on February 15. It is possible that other railroads may offer reduced rates similar to the above. Inquiry should be made of railroad agents before tickets are bought.

FARM MANAGEMENT

Farm efficiency studies.—During the past seven years nearly three thousand survey records of farms have been obtained for the Department of Farm Management. Most of these are from Tompkins, northern Livingston, and central Jefferson counties. Each record shows the business of a farm for a year, and the profit, expressed as "labor income." The labor income is what a farmer makes above all farm expenses and above interest on the capital invested in his business.

Some farmers do not make even interest on their capital, not mentioning pay for their labor. Many do not make so much as a good hired man does. But, on the other hand, some make over two thousand dollars, and a few make over four thousand dollars, labor income.

These records have been studied carefully in order to learn the fundamental reasons for the different results; in other words, in order to find out what the successful farmers did, and under what conditions they worked, so as to gain success. The study has shown clearly that in almost every instance the success or the failure of a farmer can be attributed to three factors: the size of business, the production (crop yields and animal production), and the diversity of business. Sometimes the work rate and the capital efficiency are important. Similar studies in other States have shown the same principles with striking consistency. *More New York farmers miss success because the size of the business is not correct than because of any other single factor. Lack of diversity and poor production limit the success of many other farmers.* A few farmers use too much labor, and farmers from the city frequently put too much money in improvements.

During Farmers' Week these points will be explained and demonstrated in lectures by members of the department and also by outside speakers. There will be an exhibition of charts which will further emphasize these essentials for success in farming. Members of the department will be on hand throughout the week for personal conference.

Farmers can study the efficiency of their own farms after a little explanation. The department plans to show all who are interested how to figure their own labor income, how to find the weak factors in their business, and how to compare its efficiency with that of successful farms. Every afternoon of Farmers' Week and on Saturday morning this kind of instruction will be given.

Farm accounting.—For the first time the department will give to farmers actual practice in keeping accounts. In previous years, methods of accounting have been described and results given in lectures, but this year a class in farm accounting will be held each afternoon and on Saturday morning. Books will be distributed, and under the direction of members of the department each farmer who enters a class will keep certain accounts. The accounts will be actual accounts as taken from books kept by farmers. The cost of production and the profit or the loss on each account will be found and the account studied.

The method taught will be one that has been developed by this department. It has been used by about fifty-three farmers throughout the State working in cooperation with the department, and has given the desired results with about the minimum of daily work. Brief directions for accounting by this method will be distributed to all persons interested.

Several lectures will be given on the results of accounts kept cooperatively by farmers. The costs and the profits of different enterprises will be given, and comparisons will be made in order to show why the results are better in certain cases than in others.

Other subjects.—Conditions on dairy farms in Delaware county have been studied during the past two years. The primary purpose of this study was to determine the cost of producing milk. A report of the work will be given during Farmers' Week.

There will also be talks on the points to be considered in choosing a farm, and advice will be given to city persons who expect to undertake farming.

POTATO SHOW

Attention is again called to the potato show to be held during Farmers' Week. An attractive prize list has been arranged, consisting of both cash and machinery prizes. A number of the seed firms of the country have signified their intention of exhibiting peck lots of the varieties that they have on sale for next year's planting, and this alone should afford an opportunity for prospective buyers to look the market over. Demonstrations of the nature and control of potato diseases, statistical data relative to the importance of the potato, and analytical charts showing its composition, will add to the value of the show.

It is now practically certain that the National Potato Growers' Association will hold its annual meeting at the College during Farmers' Week. An effort will be made to materialize plans for the permanent organization of a state potato-growers' association. Potato-growers from all parts of the country who will be called in for these meetings will doubtless make the program exceedingly interesting.

Prospective exhibitors, whether farmers, breeders, or tradesmen, will find opportunity for competing for prizes on the entry and premium list, which may be obtained by writing to the Department of Farm Crops. Every one has an equal opportunity to compete in his particular class, and plans should be begun at once. Entry specimens should be wrapped separately in paper in order to prevent them from freezing, and should be shipped by express collect to the department as early as possible so as to be on hand in time. All varieties for entry should be labeled, and the class in which the entry is to be made should be designated in writing.

For the premium list and for further information, inquirers should address Potato Show Committee, Department of Farm Crops, College of Agriculture, Ithaca, New York.

DEPARTMENT OF FORESTRY

In connection with the lectures on farm forestry given during Farmers' Week there will be a forestry exhibit in the Home Economics Building, consisting in part of the following: specimens of wood commonly used in construction, interior finish, furniture, wood paving, veneering; sections of treated fence posts; cones, tree seeds, seedlings, and transplants of species native to New York State which are suitable for planting by farmers; instruments used by foresters in measuring the height, diameter, and volume of trees; microscopic slides of wood sections; maps; pictures of trees and of forests in various parts of the country; models illustrating by miniature forests the history of a stand of timber; a model to show how forests may be managed, protected, and utilized for the benefit of the commumity.

Demonstrations will be made showing the method of open-tank treatment of fence posts and other farm timbers; and field trips to the forest nursery and to forest plantations will be made, weather permitting.

NEW YORK STATE RURAL ENGINEERING SOCIETY

The third annual meeting of this society will be arranged in divisions, each division being devoted to one of the three main branches of rural engineering: farm structures will be discussed in papers, written by practical men, on barns for hay handling and barns for producing certified milk; farm mechanics will be taken up in a discussion of spray rigs by a fruit-grower of experience; and the farm-engineering division will discuss irrigation in New York State. Road-building is a very important rural problem, and one afternoon will be devoted to this subject.

Any person interested in rural engineering may become a member of the society on payment of the fee of one dollar, payable to the Secretary-Treasurer, H. W. Riley, Ithaca, New York.

NEW YORK STATE VEGETABLE GROWERS' ASSOCIATION

The plans of the New York State Vegetable Growers' Association for its fourth annual meeting, February 10 to 12, 1914, are nearing maturity. The association is to be the guest of the Department of Vegetable-gardening at the College of Agriculture. The subjects to be treated include: fertilizers for vegetable crops; vegetable insects; canning the surplus; vegetable-forcing and forcing crops; packages; good seed; onions on muck land; the rarer vegetables; asparagus; tomatoes; melons; cucumbers. Among the speakers already assured are: Professor R. L. Watts of the Pennsylvania State College; Dr. L. L. Van Slyke of the New York (Geneva) Agricultural Experiment Station; H. B. Fullerton of the Long Island Railroad Experiment Stations. Others of national reputation are expected. These men, with a number of the best growers of our own and other States, and members of the Cornell staff, will complete the list, which will appear in detail in the February issue of the Announcer. The potato is to receive more attention than it has in any previous year. The association is cooperating with the National Potato Association and the Department of Farm Crops in designating Tuesday of Farmers' Week as Potato Day. Several periods are devoted solely to potatoes: during other periods, other vegetable subjects that will not conflict are to be considered. As usual the program is definitely scheduled throughout the day. A part of each period is set aside for round-table discussions, a feature of great helpfulness to practical growers.

This year the association will hold a banquet on Wednesday evening, which, it is expected, will mean much in enthusiasm, inspiration, and broadened acquaintance.

The seed service of the association, which has proved increasingly useful in securing for the members good seed at reasonable cost, will be discussed on Wednedsay afternoon.

Growers are urged to plan to spend at least three days in Ithaca. The cost is but little more than for one day, and every moment will be well spent.

Separate programs of the New York State Vegetable Growers' Association are available on application to the Secretary, Paul Work, Ithaca, New York.

HOME-GARDEN DAY

In 1913 a home-garden day was included in the program for Farmers' Week. At that meeting flowers and vegetables were the subjects discussed. So great an interest was shown in the work of home gardens that it was deemed advisable to increase the scope of the work this year. Four departments of the College have agreed to cooperate in this matter. The following program has been devised for Home-garden Day, February 13, 1914:

9 to 10 a. m. Fruit for the home garden. A discussion of the different varieties of fruit to be raised in the garden, and of the incidental care of this fruit. Professor C. S. Wilson.

10 to 11. Flowers for the home garden. Choice collections of flowering plants suggested for planting in the home garden. Miss L. A. Minns.

11 to 12. Vegetables for the home garden. An illustrated lecture. Details will be given as to the advantages of a good vegetable garden. Albert E. Wilkinson.

12 m. to 1 p. m. Arrangement of the home garden. The laying-out of walks and drives, the construction of lawns, and arrangement and planting of shrubbery and trees. Professor E. G. Davis.

During the afternoon round-table discussions will be held. It is important that problems relating to the various subjects be collected by the persons interested, and presented for discussion at these round tables. The subjects are as follows:

2 to 3 p. m. Home gardening. A. E. Wilkinson in charge.

3 to 3.30. Flowers for the home garden. Miss L. A. Minns in charge.

3.30 to 4. Fruit for the home garden. Professor C. S. Wilson in charge.

4 to 4.30. Arrangement of the home grounds. Professor E. G. Davis in charge.

DEPARTMENT OF FLORICULTURE

The program for Farmers' Week as prepared by this department should appeal to many persons. Practical commercial growers will be interested in the scientific and technical subjects presented on Wednesday and Thursday; and the talks on Friday will be of value to every one, for they intimately concern the home, its ornamentation, and its increased utility. The departments of Pomology, Vegetable-gardening, and Landscape Art have cooperated in the program for Friday.

For several years investigations with peonies, sweet peas, and other outdoor plants have been conducted by the Department of Horticulture, and on Wednesday morning some of the results obtained will be reviewed. The results of investigative work with roses and carnations at the New Jersey Agricultural Experiment Station will also be presented. On Thursday it is expected that a large number of florists will be in attendance. The talks will be largely of a scientific nature and will be presented by men connected with the College. These talks should give the visiting florists a clear knowledge of the character of the work done at Cornell, and should bring about a close affiliation between the College and the commercial floricultural interests of the State.

DEPARTMENT OF PLANT PATHOLOGY

Members of the staff of the Department of Plant Pathology will lecture on various subjects pertaining to plant disease, and will conduct demonstrations showing the proper methods of controlling disease.

One of the most important problems confronting the apple-grower is the control of the various diseases and insect pests attacking the apple.

In order to insure successful control, it is necessary for the grower to become acquainted with these pests. The lecture on apple-tree diseases will afford useful information.

Every one who has sprayed apple trees with liquid spray applied with a power machine will appreciate the advantages of dust applications if these can successfully control the pests and diseases of the apple. The lecture on "Experiments with dusting for the control of apple diseases and pests" will explain the experience of the department along this line during the past season.

There are very few orchards in the State where all the trees are free from cankers, and in many orchards cankers are very abundant and harmful. Many farmers do not know how to treat them. For such men the demonstration of the proper method of cutting out cankers will be particularly valuable.

Peach trees also have their diseases and some of these are difficult to control. Growers who sprayed for peach-leaf curl last spring, and whose trees yet were affected by the disease, must realize that something was wrong. The lecture on peach-tree diseases will interest all peach-growers.

The loss each year in New York State from grain smuts probably amounts to nearly a million dollars. The loss from oat smut alone—a disease that can be easily and cheaply controlled—has amounted to about eight per cent of the crop. Some of the grain smuts cannot be easily controlled. The lecture on grain smuts and the demonstration of the control of grain smuts will appeal to the general farmer.

Every one who remembers the great epidemic of potato blight and rot during the fall of 1912, and the enormous loss resulting, will naturally wish to know what has become of the disease since it did not appear during the past season. If the fungus causing this disease has died out entirely, what is the use of spraying potatoes next year ? This interesting question will be considered in the lecture entitled, "What has become of the potato blight ?" All who hear the lecture will be convinced of the necessity of spraying every year; and many growers who do not now know how to make bordeaux will have an opportunity to learn during the demonstration of this work.

There are a number of other important potato diseases with which every grower should become familiar, particularly the dangerous foreign diseases that have already been or may be introduced into this country in spite of the vigorous government quarantine. The lecture on "Some dangerous foreign potato diseases likely to be introduced into this country" should be heard by every potato-grower attending Farmers' Week.

An exhibit of potato diseases may be seen at the potato show.

It is true that there are many troublesome and destructive diseases of plants in various localities of the State which have not yet received the attention of this department. The department would like to solve all such problems, but difficulties stand in the way. Nevertheless there is a way by which farmers may obtain the services of a plant doctor in their immediate vicinity. How this may be done will be explained in the lecture, "Do you want a plant doctor in your locality ?"

STUDENTS' ASSOCIATION

The fifth annual meeting of the Students' Association of the New York State College of Agriculture will be held at the College on Wednesday of Farmers' Week, February 11, at 10 a. m., with the following program : 10 a. m., Director's annual address to former students; 10.30 a. m., President's address, followed by business meeting; 12 m., informal luncheon at Home Economics Building; evening, general get-together of all former students, members of the faculty, present students, and friends. Questions of much importance to former students are to be considered at the business meeting in the morning.

There is an increasing tendency for former students of the College to make Farmers' Week their reunion time, and this tendency is strongly encouraged. The meeting of old friends is one of the attractive features of the week.

COUNTRY CHURCH CONFERENCE

The fifth annual New York State Country Church Conference will be held on Tuesday of Farmers' Week, February 10, beginning at 9 a. m. and continuing throughout the day. The program this year will be composed of addresses and discussions by country ministers and active laymen in the churches, in this respect differing from the conferences held heretofore. A full program of addresses by these speakers is now practically completed. Following the addresses there will be opportunity for general discussion.

The country church conference is intended primarily for country pastors and other rural religious and social workers of any denomination. The sessions are open to all interested persons. Rural churches especially are encouraged to send their pastors, or to instruct members of their congregations who may attend Farmers' Week to represent them at the conference and carry back reports.

RURAL SCHOOL EDUCATION

Beginning on Monday of Farmers' Week at two o'clock, and continuing through Friday, there will be lectures and discussions each day in the interest of rural school education. These will be held in the Rural Schoolhouse at half past nine in the morning and at two o'clock in the afternoon. The program will be arranged for the benefit of the district superintendents, rural leaders , and rural teachers. The following subjects will be discussed at the meetings : (1) Boys and girls in rural districts : health, work, resources. (2) The rural teacher, present-day preparation; the trustee. (3) The rural school as a social center : relation to home, church, and grange; consolidation; demonstration schools. (4) Rural school grounds; land for experiment; school and home gardens. (5) Rural school building : design, interior decoration, equipment, library. (6) Agriculture in elementary schools; nature study; domestic science. (7) Agricultural contests and exhibits; Corn Day; Farmers' Week. (8) Cooperation between district superintendents, special teachers of agriculture, farm bureau agents, and others. (9) Recreation, public speaking, dramas, folk songs, folk dances.

There will be present at these meetings, to open discussions and to take part in them, district superintendents, rural teachers, rural leaders, and representatives of the New York State Education Department, of normal schools, of agricultural schools, and of the New York State College of Agriculture. On Thursday—Lincoln's birthday—there will be a program of special interest to rural teachers, during which the new lines of work now being introduced into rural schools will be discussed. On Tuesday evening and on Thursday evening there will be opportunity for district superintendents to meet informally, to talk over school matters, and later to take part in a social hour.

In addition to the conferences held in the Rural Schoolhouse during Farmers' Week, there will be an exhibition of work from rural schools which will be arranged and set up in the new Auditorium. This exhibition will consist of two parts , the first of which will be a corn show. On Friday, December 5, 1913, the rural schools of the State celebrated Corn Day with appropriate exercises and exhibits in the local schoolhouses. From these exhibits the best ear of flint corn and the best ear of dent corn in each school were selected and forwarded to the College. These ears, a large number of which have been received, will be arranged according to counties and supervisory districts, so that visitors during Farmers' Week may be able to ascertain how well their home communities are represented. The corn will be judged, and ribbon prizes will be awarded for the best ear of each variety in each county. The two prize ears from the State as a whole will be selected and suitable rewards will be given. The prize ears will all be returned to the schools from which they came, with instructions for storing, planting, cultivating, harvesting, and further seed selection next fall, in order that the corn, which presumably has been carefully chosen, will perpetuate itself. In addition there will be a large number of ears that are nearly as good as the prize ears, and these will be given away to visitors during Friday and Saturday of Farmers' Week. Those who take home ears of corn will be requested to communicate with the schools that sent the ears to the College, in order that the latter may know where the corn has gone. In this way interest will be stimulated over the State as a whole, not only among the schools but also among the older folk. It is hoped that this process may go on from year to year, and that careful records may be kept in order that schools may follow the results of the work that they do in selecting the corn.

The second part of the exhibition will consist of a general collection of specimens along the line of natural history and elementary agriculture, one from each rural school. Suggestions have been sent to the schools for this exhibit and it is expected that many schools will be represented. Some of the specimens that will undoubtedly be sent in are : collections of feeds, grains, seeds, weeds, grasses, wild flowers, woods, nuts, fertilizers, and stones; bird boxes; drawings and essays; sewing; bread; reports of school work; and the like. These will be arranged so that the schools sending them may be easily located. Ribbon prizes will be given for the best specimens in the various classes. It is hoped that every school in the State will be represented at Farmers' Week in some way, either by sending two ears of corn or by a natural history specimen, or by both.

DEPARTMENT OF POULTRY HUSBANDRY

Educational exhibit.—The educational exhibit will be staged in various rooms of the Poultry Husbandry Building, in connection with each of the principal divisions of the work. There will be a special exhibit of eggs, egg-shipping packages, and devices for testing, cleaning, and handling eggs. The exhibit having to do with killing, picking, packing, handling, and refrigeration of poultry will be in the killing room. Special appliances for hatching will be in the basement. Appliances for brooding chickens and for handling poultry for egg production and fattening will be in the mechanics room. A special display of live poultry, representing most of the principal varieties to be found in the vicinity of Ithaca, will be on exhibition in the large laboratory; these will be scored and judged by students and members of the staff. An exhibit of models of poultry farms and methods of organization and location of buildings, crops, and the like, will be found in the extension room. A special display of methods of instruction, and charts showing the results of recent investigations in poultry husbandry, will occupy wall space in the corridors. Maps showing the location of students who have taken courses in poultry husbandry at Cornell and the location of poultry farms in New York State, and statistical maps showing the distribution of poultry and the extent of the industry in New York State, will be found in the poultry library, together with a special reference collection of the principal books and papers dealing with the subject.

Lectures and demonstrations.—Two to six lectures will be given each forenoon during the week, by members of the departmental staff, on subjects of most timely importance in the practical handling of poultry. In many instances these lectures will be illustrated by charts, models, lantern slides, and demonstrations. The lectures and demonstrations will be so arranged that they will precede laboratory and practice courses and contests. Opportunity for asking questions will be given at each session.

Laboratory and practice instruction.—In order that persons may have actual experience in the handling of eggs and poultry, laboratory work will be provided in killing, picking, packing, trussing, and drawing poultry; cleaning, testing, candling, grading, and packing eggs for market and for hatching; dissection of poultry, and the study of the physiology of digestion and reproduction and of the structure and development of the egg; selection of breeding stock.

Contests.—Opportunity will be given to visitors to demonstrate their skill in a number of contests, such as killing, picking, and packing poultry; judging eggs; judging poultry for exhibition and for constitutional vigor; judging dressed poultry.

Poultry institute.—In order to accommodate persons who cannot attend each day in the week, a number of the more important subjects for lectures and demonstrations will be repeated. These cover such questions as : feeding for egg production; methods of brooding and feeding chickens; judging poultry for constitutional vigor; methods of sanitation; plans for organizing the laying-out of poultry farms; methods of fattening; preparation of poultry and eggs for market; methods of marketing; breeding for egg production; poultry diseases.

Conferences.—In response to a general demand, special preparation will be made to welcome representatives from the forty or more poultry associations of the State. Topics for discussion will be : methods of organizing and conducting poultry associations and poultry shows; organizing protective associations against thieving; special programs for meetings; methods of cooperation in the handling and selling of poultry products.

Ithaca Poultry Producers' Association.—One full session will be devoted to the work of the Ithaca Poultry Producers' Association, which will have completed its first year. Inasmuch as the association has handled eggs and poultry for one hundred and sixty or more producers within driving distance of Ithaca, and has been able to save for the producers considerably more than a thousand dollars as compared with the usual methods of marketing poultry products, this meeting should appeal to poultrymen generally throughout the State.

Exhibits.—There will be on exhibition displays of various appliances for use in the poultry industry, eggs from the different breeds and varieties of poultry, a live-poultry exhibit, and an exhibit of dressed poultry. Admission to the live-poultry exhibit will be limited to persons near Ithaca because of lack of space.

DEPARTMENT OF ANIMAL HUSBANDRY

Students' live-stock show.—This year the students of the Round-up Club propose to hold a competitive live-stock exhibition, showing representatives of the college herds and flocks exclusively. Classes of horses, cattle, and sheep have been scheduled. The contestants will choose their animals for the various classes by lot. For the month previous to the show, under the direction of the departmental staff and of breeders engaged by the department, the students will be given practical instruction in training, grooming, and fitting animals for the show ring. All the animals entered in the competition will be judged by experienced breeders with regard to their condition, grooming, and attitude in the ring, rather than with regard to their individual merit. To the winner of the first prize in each class will be awarded a suitably inscribed medal of appropriate design, and to the winners of the second and third prizes in each class will be awarded ribbons bearing the design of the medal.

Farmers' judging contest.—On Wednesday afternoon of Farmers' Week there will be a cow-judging contest. In the past the farmers have entered this contest with much interest and have derived from it much enjoyment, as well as some knowledge. In this contest the farmer is given an opportunity for testing his ability to correlate form and function. To the winners suitable medals will be given.

Cow-demonstration test.—A feature of the departmental activities that should prove of interest to farmers will be the seven-days cow-demonstration test. Twelve cows will be selected, two each of registered Ayrshires, Jerseys, Guernseys, Holsteins, and Shorthorns, and two grade Holsteins. The purpose of this test is, not to illustrate comparative merits of the different dairy breeds represented, but rather to emphasize the importance of records of production. Accurate records of the hay, grain, silage, and roots fed, and of the milk and the butter-fat produced, will be posted daily on a placard above each cow. The records of production made on this test are demonstration records, not advanced registry official records.

Feed exhibition.—In the Animal Husbandry Building there will be an exhibit of twenty-four of the commoner feeds. These feeds will be shown pure, as well as mixed in suitable rations for horses and dairy cows.

Horse parade and demonstration.—There will be a parade of all the horses owned by the New York State College of Agriculture. This parade will form at the new horse barns and will proceed to the quadrangle west of the Animal Husbandry Building; here the animals will be held for a short general inspection, after which they will parade back to the barns.

Horse-training demonstration.—This year the students of the department have trained and fitted eighteen colts for market. A demonstration of the thoroughness of this training will be given sometime during the week, the date for which will be announced later.

Sale of surplus animals.—The annual public sale of live-stock has come to be one of the events of Farmers' Week, not because of the large number or the variety of animals offered, but because the farmers of the State are given an opportunity to purchase animals of careful breeding.

SPECIAL EMPLOYMENT NOTICE

In the winter courses now in session are a considerable number of young men who will be available for positions at the close of the courses on February 13. They will be fitted to take positions ranging from helpers to foremen in butter and cheese factories, and on poultry, fruit, truck, stock, and general farms. Some that have had considerable experience will be fully qualified for the management of farms. Persons desiring to engage such help should at once address the Secretary, College of Agriculture, Ithaca, New York.

ANNOUNCER
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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

FARMERS' WEEK—FEBRUARY 9-14, 1914

Railroad tickets.—Tickets to Ithaca can be bought from the New York Central and Hudson River, the Lehigh Valley, the Delaware, Lackawanna, and Western, the Delaware and Hudson, and the Erie railroads at "a cent and a half a mile in each direction from points in New York State, except that no fares to apply from New York City or points within fifty miles thereof; tickets to be sold and good, going February 9 to 14, and returning to reach original starting point not later than February 15." In applying at local stations for rates, persons should state that they desire **round-trip** tickets to Ithaca for **Farmers' Week.**

Buildings.—The New York State College of Agriculture is in the eastern part of the campus of Cornell University. It consists of thirteen buildings, three of which are closely connected and extend east and west. The large central building of this group is known as Main, and, connected with it by covered loggias, on the west is the Agronomy building and on the east is the Dairy building. The Animal Husbandry pavilion is located near the east end of the Dairy building, and the Farm Mechanics building is directly east of the Animal Husbandry pavilion. The new Home Economics building is north of the Main building and next to the new Auditorium. The greenhouse buildings and the glasshouses are east of the Dairy building, and the new Poultry building is east of the greenhouses. The Forestry building is now under construction northwest of the Poultry building. The Department of Landscape Art is housed just north of the Farm Mechanics building. The new Animal Husbandry buildings are under construction some distance east of the Poultry building and overlooking the playground. Still farther east are the university barns, these being located about half a mile due east of the main building.

Checking room.—Second floor, Main building, for coats and parcels.

Guides to campus and farms.—Parties of five or more will be furnished guides to points of interest on the university campus and farms by applying to the Information Bureau. A conveyance in charge of student guides will leave the Animal Husbandry building for the farm barns daily at 1 p. m., 2 p. m., 3 p. m., and 4 p. m. Twenty persons can be carried on each trip.

Information bureau.—Apply to this bureau on the first floor, Main building, for programs and information.

Room and board.—A directory of available rooming and boarding places will be found at the Information Bureau. Plans have been made to insure comfortable accommodations for all visitors.

Meals.—The cafeteria in the Home Economics building will be open from 7.15 to 9 a. m., 10.30 to 2.30 p. m., and 4.30 to 7 p. m. Lunches or complete meals may be procured at regular cafeteria prices.

Conventions and conferences.—A number of conventions and conferences will be held at this time. Among these will be: The New York State Drainage Association (Monday, Tuesday); Cornell Dairy Students' Association (Wednesday); Home-makers' Conference (Monday to Saturday); New York State Country Church Conference (Tuesday); Students' Association of the New York State College of Agriculture (Wednesday); New York State Federation of Floral Clubs (Wednesday); Rochester and Buffalo Florists' Club (Thursday); New York State Rural Engineering Society (Wednesday, Thursday); New York State Vegetable Growers' Association (Tuesday to Thursday); New York State Bee Keepers' Association (Tuesday); Conference of Poultry Associations and Clubs of New York State (Wednesday); Rural School Education Conference (throughout the week). In addition to the above conferences, a special potato program has been arranged for Tuesday and a home-garden-day program for Friday. The programs for the above are included in the general program following.

Exhibits.—Another feature of the week will be the exhibits arranged by the various departments. Among these will be: the Animal Husbandry exhibit; the exhibit of Dairy Industry, showing bacteria and their relation to clean milk; an exhibit of injurious insects, animal parasites, and the like, by the Department of Entomology, Biology, and Nature Study; the Farm Mechanics exhibit of various water-supply systems and farm tools; the Forestry exhibit; the Home Economics exhibit; an exhibit of Farm Crops, with special reference to timothy, alfalfa, and potatoes; an exhibit of farm accounting by the Department of Farm Management; a floricultural exhibit; an exhibit of the Department of Vegetable-gardening; an exhibit of the Department of Poultry Husbandry; demonstrations and exhibits of plant diseases; an exhibit by the Department of Plant Physiology showing benefits from legume crops; and exhibits from the rural schools.

Program.—The program is given below in most condensed form. The full program, in pamphlet form, may be obtained at the registration desk.

LECTURES AND DEMONSTRATIONS

MONDAY

9 a. m.—L. W. Arny.—Tree fruits for the home garden.
M. W. Harper.—Regular class exercise: The horse.
T. E. Schreiner.—Modern methods of incubation.
10 a. m.—E. O. Fippin.—The maintenance of permanent fertility of the soil.
D. Reddick.—Spraying for apple diseases. Repeated Friday 1 p. m., Saturday 11 a. m.
F. W. Kazmeier.—Modern methods of brooding.
10.30 a. m.—L. M. Hurd.—Feeding growing stock.
11 a. m.—S. Fraser.—Marketing problems in fruit-growing.
W. Mulford.—County, town, and village forests for New York State. Repeated Friday, 10 a. m.
C. E. Ladd.—Results of cost accounts on New York farms: live-stock enterprises.
E. W. Benjamin.—Selecting eggs for hatching: disposing of surplus birds and culls.

12 m.—J. L. Stone.—The university farm, and crop rotation.

H. W. Riley.—Water-supply systems and machinery.

W. G. Krum.—Selecting breeders.

12.30 p. m.—T. E. Schreiner.—Rations and method of crate-fattening poultry.

1 p. m.—E. G. Montgomery.—Alfalfa.

2 p. m.—President J. G. Schurman.—Address of welcome.

New York State Drainage Association.

M. W. Harper.—Regular class exercise: Judging horses.

K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business. Repeated each afternoon and Saturday morning.

A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts. Repeated each afternoon and Saturday morning.

Round-table discussion by members of the staff of the Department of Poultry Husbandry and others.

2.30 p. m.—Rural School Education Conference.

3 p. m.—C. R. Crosby.—Insects causing knotty apples.

S. N. Spring.—Forest planting. (Illustrated.)

H. L. Ayres.—Some dairy losses in New York State.

Opening of Home-makers' Conference. Flora Rose, Martha Van Rensselaer.

New York State Drainage Association.

Instruction in farm management (continued).

R. S. Moseley.—The New York State turkey crop and how to grow it.

3.15 p. m.—Blanche E. Hazard.—Rural education.

4 p. m.—New York State Drainage Association.

H. W. Riley.—Septic tanks. (Illustrated.)

7.30 p. m.—Round-up Club. Students in charge.

8 p. m.—Winter-course prize speaking contest. Winter-course debate for the Morrison trophy. Music by the winter-course students.

New York State Drainage Association. H. O. Buckman.—Some principles in the improvement of soils by means of drainage. (Illustrated.) F. G. Watson and I. C. H. Cook.—Experience in the operation of traction ditching machines.

TUESDAY

9 a. m.—E. G. Montgomery.—Potato statistics. E. V. Hardenburg.—Potato survey work.

H. H. Wing.—Regular class exercise: Principles of breeding animals.

New York State Vegetable Growers' Association. T. C. Johnson.—Norfolk trucking. (Illustrated.)

New York State Drainage Association.

Clara W. Browning.—Egg cookery.

Bertha E. Titsworth.—Textiles.

J. E. Rice.—The physiology of digestion and the development of the egg. (Illustrated.)

Demonstration: Weeds; the preparation of objects for microscopical investigation.

Judging contest in milk, butter, and cheese.

9.30 a. m.—Rural School Education Conference.

10 a. m.—C. H. Myers.—Potato-breeding. Discussion by G. D. Brill and Daniel Dean.

H. C. Troy.—Testing dairy products for fat.

G. P. Scovill.—The county agent's study of successful and unsuccessful hill farms in Chemung county.

H. R. Ramsey.—Precooling. (Illustrated.)

L. Knudson.—Mushroom-growing for the home.

New York State Drainage Association.

New York State Country Church Conference. Reverend S. E. Persons, presiding.

Flora Rose.—What shall we eat?

Sewing conference.

John Bentley, Jr.—Methods of determining the sale value of timber in the farm woodlot. Repeated Thursday, 10 a. m.

L. M. Hurd.—Feeding for egg production.

S. D. House.—The honeybee and its habits.

10.30 p. m.—W. G. Krum.—Laying out a poultry farm.

11 a. m.—F. A. Sirrine.—Potato fertilizer problems. Discussion by Samuel Fraser.

A. L. Thompson.—Conditions on dairy farms and cost of milk production in Delaware county. Repeated Friday, 1 p. m.

M. C. Burritt.—Business methods in fruit-growing.

New York State Drainage Association.

E. S. Savage.—Raising dairy calves.

A. P. Fisher and E. R. Hay.—Round-table: Onions on muck.

New York State Country Church Conference.

Helen B. Young.—A study of farmhouses. (Illustrated.)

Extension school in domestic science: Cereals and rice. Conducted by Miriam Birdseye.

C. A. Rogers.—Some common poultry diseases.

S. D. House.—The honeybee and its habits (continued).

12 m.—Dean H. E. Cook.—Address.

H. H. Love.—Cereal-breeding.

H. W. Riley.—Gas-engine ignition systems

Winifred Moses.—Home nursing.

E. W. Benjamin.—Egg supply for the home.

C. R. White.—Cucumbers.

M. F. Barrus.—Dangerous foreign potato diseases likely to be introduced into the State by planting imported potatoes.

1 p. m.—K. C. Livermore.—Farm efficiency as affected by size, production, and diversity of business.

C. S. Wilson.—Small fruits for the home garden.

H. E. Ross.—Statistics on dairying in New York State, with special reference to the keeping of cow records.

Domestic science exhibits and excursions. In charge of Professor Rose and students.

2 p. m.—W. H. Jordan.—Address.

E. P. Smith.—Little points with big profits in potato-growing.

Blanche E. Hazard.—House-cleaning and historical records.

D. J. Crosby.—Sanitary plumbing.

Music by Mrs. Rose LeV. Morgan.

P. Work.—Crops under glass.

New York State Drainage Association.

Horse-training demonstration and students' competition.

New York State Country Church Conference.

K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business.

A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts.

Round-table discussion by members of the staff of the Department of Poultry Husbandry and others.

2.30 p. m.—Rural School Education Conference.

3 p. m.—H. R. Talmage.—Seed-potato situation. Discussion by C. B. Tillson.

E. S. Guthrie.—Farm separators.

J. L. Stone.—Clovers in New York agriculture. Repeated Friday, 3 p. m.

Dr. W. L. Williams.—Sterility in cows.

E. A. White.—Home flower gardens.

A. B. Recknagel.—Demonstration of method of preserving fence posts.

New York State Drainage Association.

S. D. House.—The honeybee and its habits.

Instruction in farm management (continued).

Dr. V. A. Moore.—Some contagious poultry diseases.

R. S. Moseley.—Laboratory practice course: Selecting breeding stock.

O. B. Kent.—Laboratory practice course: Poultry anatomy and the study of the egg.

E. L. Andrews.—Laboratory practice course: Testing, grading, and packing eggs.

L. M. Hurd.—Demonstration: Killing and dry-picking poultry.

L. M. Hurd.—Laboratory practice course: Killing, dry-picking, scald-picking, and packing poultry.

New York State Country Church Conference.

3.30 p. m.—H. C. Hatch.—Improving the market value of potatoes.

4 p. m.—New York State Country Church Conference.

Business meeting of the Potato Growers' Association.

G. W. Herrick.—Household insect pests.

S. D. House.—The honeybee and its habits (continued).

New York State Drainage Association.

Poultry laboratory practice courses (continued).

5 p. m.—E. L. Andrews.—Contest in judging eggs.

Reception and banquet of present and former students in the Department of Poultry Husbandry.

7.30 p. m.—National Potato Growers' Association. L. C. Corbett.—Potatoes as a commercial crop in America. T. C. Johnson.—Potato-growing in Virginia.

J. B. Harpending.—Round-table discussion: Swine husbandry in New York State.

8 p. m.—W. W. Grant.—Economic value of birds in relation to the farmer. (Illustrated.)

Entertainment by winter-course students.

WEDNESDAY

9 a. m.—A. L. Thompson.—Farm products best adapted to New York State by climate, location, and other factors.

New York State Vegetable Growers' Association. C. O. Warford.—Canning the surplus.

Federation Council. Conference. S. J. Cook, Chairman.

H. B. Knapp.—Orchard management: cultivation, fertilization, and cover crops.

New York State Federation of Floral Clubs. W. F. Kasting.—President's address. M. A. Blake.—Individuality in rose plants.

New York State Rural Engineering Society. F. H. Richards.—Barn construction and hay-handling. (Illustrated.)

Cornell Dairy Students' Association. W. E. Ayres.—President's address. Acting Director. W. A. Stocking, Jr.—Our organization and its aim (at 9.30).

F. Skinner.—Modern methods of fattening poultry. Demonstration with cramming machine.

J. B. Bain.—Demonstration: Judging dairy cattle.

Clara W. Browning.—Meat.

Bertha E. Titsworth.—Testing of textiles

Judging contest in milk, butter, and cheese.
Meeting of the National Potato Growers' Association.
9.30 a. m.—Rural School Education Conference.
10 a. m.—E. O. Fippin.—Lime in relation to soil fertility.
Annual meeting of Students' Association. Acting Director W. A. Stocking, Jr.—Address to former students.
National Potato Growers' Association.
A. C. Beal.—Some investigative problems in flower-growing.
P. Work.—Packages for vegetables. (Illustrated.)
George Young, Jr., and F. H. Richards.—Barn construction. Round-table.
Cornell Dairy Students' Association.
S. D. House.—Management of the apiary.
Flora Rose.—Cost of food.
Sewing conference.
K. C. Livermore.—Adaptability of poultry to New York State farm conditions.
Rural School Education Conference.
11 a. m.—E. Van Alstyne.—Rural citizenship.
M. W. Harper.—Regular class exercise: The horse.
F. B. Moody.—What the farmer can do toward improving the woodlot. Repeated Friday, 11 a. m.
I. Bertermann.—Some factors in retailing flowers.
F. J. Zuck.—Greenhouse cucumbers.
Annual meeting of Students' Association.
S. D. House.—Management of the apiary (continued).
Martha Van Rensselaer.—Cost of living.
Extension school in domestic science: Cooking of meats. Conducted by Miriam Birdseye.
J. E. Rice.—Recent light on some New York State poultry problems.
Cornell Dairy Students' Association.
National Potato Growers' Association.
12 m.—W. H. Vary.—Is it worth while?
J. L. Stone.—Oat-growing.
J. K. Wilson.—Inoculation for legumes.
E. N. Reed.—Late cabbage.
Winifred Moses.—First aid to the injured.
Edith C. Fleming.—Household accounts.
C. E. Ladd.—Results of cost accounts on New York farms: Cost and profits of various crops.
J. C. Graham.—The personal factor in poultry husbandry.
1 p. m.—M. F. Barrus.—What happened to potato blight last year.
K. C. Livermore.—Some advice to city persons who expect to farm.
U. P. Hedrick.—Pruning of fruit trees.
Domestic science exhibits and excursions. In charge of Miss Betts and students.
2 p. m.—Honorable Calvin J. Huson.—Address.
G. W. Herrick.—Insect pests of apples, peaches, and plums.
Helen B. Young.—Study of interiors.
R. L. Watts.—Good seed. Round-table on the Association Seed Service.
B. B. Robb.—Leveling and leveling instruments. A demonstration for road-builders.
Cornell Dairy Students' Association.
Meeting of poultry associations and clubs of New York State. R. H. Essex, presiding.
K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business.
A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts.
Competitive cow-judging demonstration.
2.30 p. m.—Rural School Education Conference.
3 p. m.—J. L. Stone.—Buckwheat-growing.
D. Reddick.—Experiments with dust for the control of apple diseases.
Business session of the New York State Vegetable Growers' Association.
E. A. White.—Educational problems in floriculture.
B. B. Robb.—Leveling and leveling instruments. Round-table.
S. D. House.—Hives, fixtures, and manipulation.
Cornell Dairy Students' Association.
Rose LeV. Morgan.—Songs that live.
Meeting of poultry associations and clubs of New York State.
R. S. Moseley.—Laboratory practice course: Selecting breeders.
O. B. Kent.—Laboratory practice course: Poultry anatomy and the study of the egg.
E. L. Andrews.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd.—Demonstration: Killing and dry-picking poultry.
Instruction in farm management (continued).
4 p. m.—M. F. Barrus.—Demonstration: Apple-tree cankers and methods of handling them.
Inspection of greenhouses and exhibits. Conducted by E. A. White.
S. D. House.—Hives, fixtures, and manipulation (continued).
Blanche E. Hazard.—The historical novel.
Reunion of winter-course students in home economics.
Poultry laboratory practice courses (continued).
6.30 p. m.—Banquet of New York State Vegetable Growers' Association.
7.30 p. m.—J. H. Hill.—Sheep husbandry in New York State. Round-table discussion.
C. H. Connors.—Multiplication of floral parts in the carnation. (Illustrated.)
8 p. m.—J. W. Pincus.—The Jew as a farmer. (Illustrated.) Under the auspices of the Cornell Menorah Society.
G. W. Cavanaugh.—An illustrated lecture on Agricultural chemistry.

THURSDAY

9 a. m.—E. H. Thomson.—Principles of successful farm management in some of the western States.
H. W. Riley.—Difficulties with gasoline engines.
H. H. Wing.—Regular class exercise: Principles of breeding animals.
H. B. Knapp.—Varieties and planting plans for the commercial orchard.
R. L. Watts.—The vegetable-forcing business. (Illustrated.)
Inspection of floricultural experimental plots. Conducted by A. C. Beal.
Clara W. Browning.—Bread-making.
Bertha E. Titsworth.—Sewing for school children.
J. E. Rice.—Natural laws influencing egg production. (Illustrated.)
Judging contest in milk, butter, and cheese.
Demonstration: Weeds; the preparation of objects for microscopical investigation.
10 a. m.—E. O. Fippin.—The maintenance of organic matter in the soil.
K. C. Livermore.—Efficiency factors on successful New York farms.
John Bentley, Jr.—Methods of determining the sale value in timber in the farm woodlot.
S. D. House.—The production and marketing of honey.
G. W. Herrick.—Insects injurious to vegetables. Round-table
A. W. Gilbert.—Plant-breeding problems for the florist.
E. W. Catchpole.—Spray rigs for the fruit-grower.
H. A. Hopper.—Cost of milk production.
Flora Rose.—Food for the growing child.
Sewing conference.
Mrs. A. W. Smith.—Farmers' organizations, from the consumer's standpoint.
10.30 a. m.—J. M. Clapp.—Organization of Tompkins county poultrymen, from the business man's standpoint.
11 a. m.—Live-stock parade: Horses and cattle of the university farm.
E S Guthrie.—Farm butter-making.
M. F. Barrus.—Is it profitable to fight fire blight?
A. J. Warren.—Market problems.
D. Reddick.—Environmental factors that control plant diseases.
E. W. Catchpole.—Spray rigs and equipment. Round-table.
Annette J. Warner.—Color in the home and in the school.
Extension school in domestic science: Milk. Conducted by Miriam Birdseye.
S. D. House.—The production and marketing of honey (continued).
E. W. Benjamin.—The first year of the Poultry Producers' Association of Ithaca.
11.30 a. m.—O. B. Kent.—Production and consumption of poultry and eggs in the city of Ithaca as shown by recent surveys.
12 m.—J. L. Stone.—Bean-growing.
G. W. Herrick.—Common insect pests of the apple orchard.
C. H. Myers.—Timothy-breeding.
G. N. Lauman.—Cooperation.
A. E. Wilkinson.—Tomatoes.
Round-table discussion on floriculture. Conducted by E. A. White.
G. S. Moler.—Fighting incipient fires.
W. S. Tuttle.—Supplying the city consumer, from the wholesale dealer's point of view.
1 p. m.—M. C. Burritt.—The farm-bureau movement.
W. H. Chandler.—Orchards on the university farm.
T. H. King, Jr.—The culture of the peach.
Domestic science exhibits and excursions. In charge of Miss Browning and students.
Conference of Cornell Study Clubs.
2 p. m.—Rose LeV. Morgan.—Lecture-recital: Folk songs.
L. L. Van Slyke.—Fertilizers for vegetables.
E. O. Fippin.—Soil problems of the florist.
Annual business meeting of the New York State Rural Engineering Society.
Students' live-stock show and competition. M. C. Wilson, Chairman.
K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business.
A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts.
Business meeting of the Poultry Producers' Association of Ithaca.
2.30 p. m.—Rural School Education Conference.
3 p. m.—D. Reddick.—Spraying requirements, from the plant doctor's standpoint.
H. M. Pickerill.—Bacteria and their relation to milk

A. B. Recknagel.—Demonstration of method of preserving fence posts.
Claribel Nye.—The rural school and domestic science.
Gertrude S. Martin.—Inculcating high ideals of marriage.
Annual meeting of the Experimenters' League.
New York State Rural Engineering Society. Irrigation session.
A. C. Hottes.—Experiments with gladioli.
S. D. House.—The production and marketing of honey.
J. E. Rice.—The Cornell University poultry farm and plant: their organization, management, and results.
R. S. Moseley.—Laboratory practice course: Selecting breeders.
O. B. Kent.—Laboratory practice course: Poultry anatomy and the study of the egg.
E. L. Andrews.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd.—Demonstration: Killing and dry-picking poultry.
L. M. Hurd .—Laboratory practice course: Killing, dry-picking, scald-picking, and packing poultry.
Instruction in farm management (continued).
Demonstration: The method of preparation of pure cultures for legume inoculation.
4 p. m.—New York State Rural Engineering Society.
M. F. Barrus.—Grain smuts and methods of treating seed to prevent them.
S. D. House.—The production and marketing of honey (continued).
Alice G. McCloskey.—The need of an art background in rural education.
Music by C. W. Whitney.
Annual meeting of the Experimenters' League.
5 p. m.—L. M. Hurd.—Killing and picking contest.
7.30 p. m.—E. S. Savage and H. A. Hopper.—Round-table: Community breeding associations.
Conference of the members of the Pomology Club and the fruit-growers.
8 p. m.—University Orchestra concert. C. W. Whitney, soloist.
H. B. Fullerton.—Little-known vegetables. (Illustrated.)

FRIDAY

9 a. m.—A. W. Gilbert —Principles of breeding.
E. S. Savage.—Regular class exercise: Principles of feeding.
C. S. Wilson.—Fruits for the home garden.
G. W. Herrick.—Insect pests of forage crops.
E. O. Fippin.—The natural purpose and distribution of soil surveys.
T. J. McInerney.—Methods of producing clean milk.
Clara W. Browning.—Bread-making.
Bertha E. Titsworth.—Patterns and their application.
T. E. Schreiner.—Modern methods of incubation.
Farm Boys' conference. Professor Hugh Troy.—The Babcock test.
9.30 a. m.—F. W. Kazmeire.—Modern methods of brooding.
Rural School Education Conference.
10 a. m.—K. C. Livermore.—Some points to be considered in choosing a farm.
W. H. Chandler.—Renewal of the neglected orchard.
J. K. Wilson.—Preparation and distribution of pure cultures for legume inoculation.
H. L. Ayres.—Methods of selling milk.
W. M. Wilson.—Weather forecasting by the Unites States Weather Bureau.
W. Mulford.—County, town, and village forests for New York State.
Lua A Minns.—Flowers for the home garden.
Flora Rose.—The human harvest.
Helen Knowlton.—Fresh air.
Sewing conference.
Farm Boys' Conference. E. S. Savage.—Pure-bred cattle. (Illustrated by representatives of the leading dairy breeds.)
L. M. Hurd.—Feeding growing stock.
10.30 a. m.—W. G. Krum.—Feeding for egg production.
11 a. m.—A. Agee.—Securing heavy grass and clover sods.
M. W. Harper.—Regular class exercise: The horse.
F. B. Moody.—What the farmer can do toward improving the woodlot.
Annette J. Warner.—Taste in dress.
Extension school in domestic science: Vegetables and salads. Conducted by Miriam Birdseye.
A. E. Wilkinson.—The home vegetable garden. (Illustrated.)
Farm Boys' conference. E. G. Montgomery.—Selecting seed corn.
C. A. Rogers.—Modern methods in poultry-house construction.
12 m.—K. M. Wiegand.—Source and distribution of weeds.
G. W. Cavanaugh.—Some applications of chemistry to agriculture.
Dr. V. A. Moore.—A discussion of the methods of infection, dissemination, and control of bovine tuberculosis. (By special request.)
C. E. Ladd.—Results of cost accounts on New York farms: cost of man and horse labor and the use of machinery.
E. G. Davis.—The arrangement of the home grounds.
A. W. Gilbert.—Race betterment.
Sarah L. Arnold.—Relation of home economics to the community.
W. W. Fisk.—Lecture and demonstration: The making of fancy cheeses.
E. W. Benjamin.—The purchase, preservation, and handling of poultry and poultry products. (Special lecture to stewards of New York State institutions.)
1 p. m.—E. O. Fippin.—Culture of investigations in soil fertility at Cornell, with notation of results.
D. Reddick.—Spraying for apple diseases.
A. L. Thompson.—Conditions on dairy farms and cost of milk production in Delaware county.
Domestic science exhibitions and excursions. In charge of Miss Fordyce and students.
Reception to teachers of home economics.
2 p. m.—Dr. John H. Finley.—Greetings from the State Education Department.
A. E. Wilkinson.—Discussion on home vegetable gardening. Round-table.
K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business.
A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts.
Round-table discussion by members of the staff of the Department of Poultry Husbandry and others.
Auction sale of surplus animals.
2.30 p. m.—Rural School Education Conference.
3 p. m.—J. L. Stone.—Clovers in New York agriculture.
Lua A. Minns.—Discussion on flowers for the home garden. Round-table.
S. N. Spring.—Field trip to forest plantations within a mile of the College.
Anna B. Comstock.—How bees and ants keep house.
Music by Girls' Mandolin Club.
M. F. Barrus.—How to make good bordeaux mixture.
J. E. Rice.—Breeding for egg production.
R. S. Moseley.—Laboratory practice course: Selecting breeders.
O. B. Kent.—Laboratory practice course: Poultry anatomy and the study of the egg.
E. L. Andrews.—Laboratory practice course: Testing, grading, and packing eggs.
L. M. Hurd.—Demonstration: Killing and dry-picking poultry.
L. M. Hurd.—Laboratory practice course: Killing, dry-picking, scald-picking, and packing poultry.
Instruction in farm management (continued).
3.30 p. m.—C. S. Wilson.—Discussion on fruit for the home garden. Round-table.
4 p. m.—E. G. Davis.—Discussion on the arrangement of the home grounds.
Carrie C. Catt.—City and town.
Anna H. Shaw.—Woman and the state.
Music by Gertrude H. Nye.
G. W. Herrick.—Round-table discussion on insect pests of vegetables.
Poultry laboratory courses (continued).
5 p. m.—Contest: Judging for constitutional vigor. Conducted by C. A. Rogers.
8 p. m.—Eastman Stage contest: Fifth annual public speaking contest for the prize of $100 given by A. R. Eastman. Music by students' musical clubs.

SATURDAY

9 a. m.—E. O. Fippin.—The fertilizer needs of New York soils: how shall they be determined?
Dr. D. H. Udall.—The physical examination of cows.
F. E. Rogers.—Practical methods in budding and grafting.
K. C. Livermore and D. S. Fox.—Instruction for farmers in figuring their labor income and in studying the efficiency of their business.
A. L. Thompson and C. E. Ladd.—Instruction for farmers in taking and using inventories and in keeping farm cost accounts.
Clara W. Browning.—Cake and pastry.
Bertha E. Titsworth.—A few problems of the home dressmaker.
Farm Boys' conference. H. M. Pickerill.—Bacteriology on the farm and in the house.
10 a. m.—J. L. Stone.—Potatoes.
Flora Rose.—Food preparation and nutrition.
Instruction in farm management (continued).
Farm Boys' conference. F. E. Rogers.—Fruit-growing.
H. E. Ross.—Clean milk.
11 a. m.—E. G. Montgomery.—Timothy meadows.
D. Reddick.—Spraying for apple diseases.
W. Mulford.—Federal and state forestry. (Illustrated.)
Martha Van Rensselaer.—Education in home economics.
Extension school in domestic science: Desserts. Conducted by Miriam Birdseye.
Farm Boys' conference.—W. G. Krum.—What the poultry industry offers to farm boys.
12 m.—G. W. Herrick.—Common insect pests of the apple orchard.
H. W. Riley.—Water-supply systems and machinery.
Helen M. Knowlton.—Clean water.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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W. A. Stocking, Jr., Acting Director — A. R. Mann, Editor

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

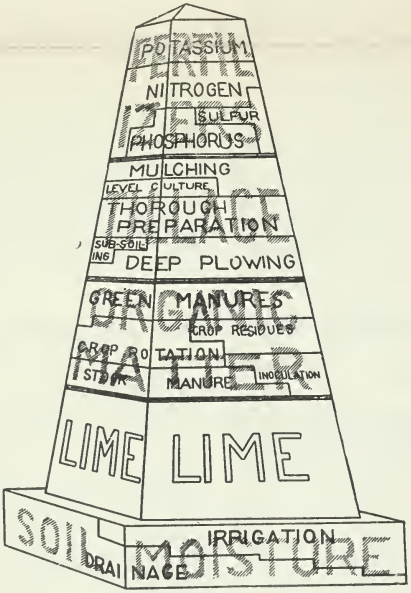
On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

MAINTENANCE OF FERTILITY OF THE SOIL

The most fundamental problem in agriculture is the maintenance and increase of the productive capacity of the soil. All important forms of plant as well as of animal life depend on the soil for the ultimate supply of material necessary to their growth. The materials that come from the soil are the most likely to become the limiting factors in crop production. Therefore the great problem identified with agriculture and, ultimately, with all other industry is the maintenance of adequate productiveness of the soil, commonly considered under the head of soil fertility. The soil is a great natural resource and its proper conservation is a problem of public concern.

The soil is productive just in proportion as it is able to meet the needs of plants for their best growth. These needs are diverse, including food, water, oxygen, heat, light, physical support, and sanitation. With one exception—light—these requirements are largely met by the mechanism and the constitution of the soil. This is accomplished by three interacting properties of the soil—its physical nature, its chemical constitution, and its biological activity. Each of these groups has many variations, which react upon and largely affect the other two divisions; so that the maintenance of fertility—the ultimate rational aim of all agriculture—presents an exceedingly complex array of problems. In farm practice ahe soil is changed for the better or for the worse by a number of treatments, such as manuring, applications of lime, tillage, drainage, and fertilizers. Intelligent soil management involves the treatment of the soil by the most convenient and economic methods, such that the desired change in its character will result. The findings of the laboratory must be translated into terms of farm practice and reduced to the simplest form for the guidance of the busy tiller of the soil, taking into account the normal nature of the soil, the requirements of plants, and the limitations of farm practice.



The accompanying diagram represents the essential factors to be observed in any soil by a succession of courses built into the form of a monument. The conditions represented by these courses are arranged, beginning at the base, in the order of their breadth of influence on the properties of the soil. They are also arranged so that one set of conditions will contribute most to the efficiency of the conditions represented by succeeding courses :

1. *Soil moisture.*—Underlying all other things pertaining to the fertility of the soil is the proper regulation of the moisture supply. It determines the solution of plant-food, the physical condition of the soil, the efficiency of tillage, the effect of fertilizers, and the biological activity. It is therefore the first thing to be adjusted. This may involve irrigation, as in arid sections; or it may necessitate drainage, as in New York. Always, however, it means the proper handling of the soil in order to conserve and effectively use the water received and stored therein. Large areas of land in New York require better drainage, particularly of the subsoil.

2. *Lime.*—Lime stands second in range of importance. It maintains the proper balance between the acid and the basic constituents of the soil. As a result of tillage and cropping, soils may become more acid—a condition unfavorable to most of the important farm crops. Lime is best suited to counteract this tendency. It may be used in different forms, depending of the local situation of the farm.

3. *Organic matter, or humus.*—The maintenance of a fair amount of decaying organic matter is essential because of the nitrogen which it contains and which is most economically secured by the aid of certain soil bacteria and leguminous crops, and because of its many beneficial physicial effects on the soil. Its increase is accomplished, according to circumstances, by means of large crop residues to which rotation and inoculation contribute, by the use of stock manure, and by the utilization of green-manure crops.

4. *Tillage.*—Tillage, deep and thorough, stirs and fines the soil,

incorporates manures and fertilizers which may be added, and contributes to general ventilation and sanitation. Various implements may be employed, according to the needs of the soil.

5. *Fertilizers.*—The chemical nature of the average soil is such that, by the proper adjustment of the conditions of moisture, lime, organic matter, and tillage, the largest possible quantity of plant-food will be made available and the soil will be maintained in a sanitary condition. Nitrogen should be supplied through the organic matter. On many soils devoted to the deep-rooted, slow-growing crops, such as fruit, commercial fertilizers may not be needed. In other cases their use should be reduced to such quantities and forms as will give the greatest economic results. The treatments preceding the application of a fertilizer should all contribute to a rise in its efficiency.

Every person, in proceeding to improve his soil, should, as far as is practicable, eliminate the need of these treatments in the order suggested, in order that the highest efficiency of the soil and the greatest benefit from the treatments and materials applied may be realized.

STUDIES IN FRUIT-GROWING

The Department of Pomology has leased an orchard from L. Houghtaling at Port Byron, New York. This orchard, consisting of eight acres planted with Baldwin and Rhode Island Greening apples, will be used for studying methods of renewal. The trees, which were originally planted too close, have now grown together so that the branches interlock. The problem presented is a common one, many orchards in New York State being in a similar condition. Different methods of renewal that are recommended will be tested. In one part of the orchard every alternate tree will be taken out, and in other parts the trees will be severely headed-in or thinned. The fruit obtained will be used for testing the various fruit-graders on the market.

Variety test.—The departmental orchard at Ithaca contains a fairly complete collection of old varieties of value and new varieties of promise. In obtaining new varieties the department will appreciate the cooperation of growers who may know of local varieties that are worth testing. A section of the pomology grounds is planted to nut trees, and the department wishes to call the attention of farmers in particular to these fruits and to urge them to forward worthy varieties for testing, especially of the more valuable hickory nuts.

Selected scions.—There has been considerable discussion from time to time as to the value of selecting scions from bearing apple trees with good records. It is probable that such a practice would not be feasible for nurserymen, since this method of selecting scions would be very expensive because scions from bearing trees do not make as satisfactory growth in the nursery as do scions from young stock. It seems possible, however, that nurserymen could maintain a scion orchard of young trees grown from scions selected from the best-bearing trees. The department hopes to develop one orchard from apple trees of excellent bearing habits, and another from trees of apparently poor bearing habits. The department will appreciate a note from farmers who may know of an apple tree that represents an excellent type of a variety, or of a tree that represents a very poor type of a variety. The influences of climate and soil should of course be eliminated from consideration.

VARIETY TESTS OF FLOWERS

The Department of Floriculture will continue through the coming season the trials of varieties of sweet peas, gladioli, and asters. Last year two hundred varieties of sweet peas, four hundred and ninety varieties of gladioli, and three hundred and eleven varieties of asters were tested. This does not comprise all the varieties of these flowers, and the other varieties now in the trade are needed in order to complete the trials.

In cooperation with the American Rose Society, trials are to be undertaken with garden roses. It is proposed to test all varieties of roses likely to succeed in the climate of New York. The assistance of all persons interested in roses is desired, so that the trials may be as complete as possible. The department will be pleased to receive varieties of these flowers for testing, and as soon as definite results are obtained the results will be published.

The department will offer in the coming summer term courses of instruction in commercial floriculture, garden flowers, conservatory plants, greenhouse and garden practice, and amateur floriculture.

LEGUME INOCULATION

The Laboratory of Plant Physiology, Department of Botany, has for distribution to the farmers of the State pure cultures of the root-nodule-producing bacteria for inoculation of the following legumes: alfalfa, sweet clover, crimson clover, alsike clover, red clover, Canada field pea, soy bean, garden and field bean, cowpea, winter and spring vetch. During the past season cultures were sent out to farmers of the State and the results were satisfactory. In order to permit of the distribution of unlimited quantities, a charge is made of twenty-five cents per acre quantity, which covers merely the cost of the container and the shipping charges. Fractional acre quantities are not sent out. Remittance by coin, check, or money order should be made to the Laboratory of Plant Physiology, New York State College of Agriculture, Ithaca, New York. Full instructions regarding the use of the cultures will be sent with the material. Orders should be sent at least two weeks before the time of sowing, so as to allow for any delay in shipment.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 337—THE BABCOCK TEST, WITH SPECIAL REFERENCE TO TESTING CREAM

Milk is usually considered valuable according to the quantity of fat that it contains. For this reason a large quantity of milk is bought on the butter-fat basis. This fact makes it nesecsary to have some comparatively simple, and at the same time accurate, test for fat in milk and its products.

The Babcock test is a test for fat in milk and its products, which is easy of operation and at the same time accurate in results. It has been a great stimulus to dairy industry, for it establishes an equitable basis for the payment of milk at butter and cheese factories, aids the discovery of fraud, enables the dairyman to distinguish the most profitable cows in his herd, and enables the dairy manufacturer to detect losses in his business and therefore to prevent them.

It is just as necessary to test the products of milk as it is to test the milk itself. Cream is one of the most important of these products, and, since a large quantity of cream is bought on a butter-fat basis the same as is milk, the testing of cream is important. In testing cream there are three main factors to be considered: first, taking the sample; second, weighing the proper quantity for the test; and third, correctly reading the completed test. Full directions are given in the bulletin here considered for properly performing each of these steps. Reading the completed test in cream and butter has always provided a source of error. This has been due to the large meniscus at the top of the fat column. The meniscus is obviated by the use of glymol, or white mineral oil, and the results obtained in reading the test when this chemical is used are carefully compared with the regular gravimetric method.

The bulletin also gives directions for testing butter, cheese, skimmed milk, and buttermilk. The necessary apparatus for testing milk and its products is described and the relative merits of different kinds of apparatus are discussed. It is intended that this bulletin shall be an aid to the farmer and to the man in the creamery by teaching them to perform properly the Babcock test.

BULLETIN 340—EXPERIMENTS IN THE DUSTING AND SPRAYING OF APPLES

Apple-growers have come to realize that the time in which effective spraying for the control of apple scab can be done is limited, in many years, to a very few days. The majority of growers do not have sufficient equipment and cannot obtain sufficient help to cover their orchards with a protective coat of spray within the natural limits of time imposed. This point was clearly in mind when the experiments recorded in this bulletin were undertaken. It is well known that trees can be covered with a combined fungicide and insecticide much more quickly by dusting than by spraying.

In the experiments reported it appears that (1) dusting is approximately four times as rapid as the best spraying; (2) that for two years insect pests have been controlled with dry arsenate of lead applied as a powder as well as, or better than, with the same substance applied in water; (3) that the control of apple scab has been nearly as good in dusting finely ground sulfur on the trees as in spraying them with lime-sulfur solution; and (4) that the cost of material for making dry applications is somewhat in excess of that for spraying.

CIRCULAR NO. 21—THE YELLOW-LEAF DISEASE OF CHERRY AND PLUM IN NURSERY STOCK

This circular treats of the yellow-leaf disease of cherry and plum in nursery stock, giving a brief discussion of the history and cause of the disease with special reference to its control in the nursery. Nurserymen will find this publication of particular interest. Of special importance may be mentioned the parts dealing with the appearance of the disease in the spring; the time to spray for its prevention; the spray materials that are most desirable; and spraying machines suitable for spraying nursery stock.

CIRCULAR 22—WHOLESALE PRICES OF APPLES AND RECEIPTS OF APPLES IN NEW YORK CITY FOR TWENTY YEARS

In this circular are given the results of an investigation of receipts and prices of apples on the New York market for the past twenty years. Information is included concerning the receipts of apples for different years and different months, the average prices by years, a comparison of the change in price of apples with the changes in price of other farm products, the average prices by months of all varieties of apples, and the average prices by months of the individual varieties. It is hoped that these figures may be of some help to farmers who are interested in the growing of apples.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request as long as the supply lasts. Residents of New York State may be placed on the mailing list for bulletins on one or more of the following subjects: apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, New York.

Bulletins:

226 An apple orchard survey of Wayne county
229 An apple orchard survey of Orleans county
260 American varieties of beans
273 The effect of fertilizers applied to timothy on the corn crop following it
283 The control of insect pests and plant diseases
289 Lime-sulfur as a summer spray
295 An agricultural survey of Tompkins county
298 The packing of apples in boxes
302 Notes from the agricultural survey in Tompkins county
305 The cause of "apoplexy" in winter-fed lambs
307 An apple orchard survey of Ontario county
313 The production of new and improved varieties of timothy
314 Cooperative tests of corn varieties
316 Frosts in New York
317 Further experiments on the economic value of root crops for New York
318 Constitutional vigor in poultry
320 Sweet pea studies—III. Culture of the sweet pea
321 Computing rations for farm animals
322 The larch case-bearer
325 Cherry fruit-flies and how to control them
327 Methods of chick-feeding
328 Hop mildew
330 Respiration of fruits and growing plant tissues in certain gases, with reference to ventilation and fruit storage
332 Oriental pears and their hybrids
333 Control of two elm-tree pests
334 A study of some factors influencing the yield and the moisture content of cheddar cheese
335 Scab disease of apples
336 Distribution of moisture and salt in butter
337 The Babcock test, with special reference to testing cream
339 Experiments concerning the top-dressing of timothy and alfalfa
340 Experiments in the dusting and spraying of apples

Circulars:

3 Some essentials in cheese-making
8 The elm leaf-beetle
9 Orange hawkweed, or paint-brush
14 Working plans of Cornell poultry-houses
15 Legume inoculation
16 The improved New York State gasoline-heated colony-house brooding system
17 The formation of cow-testing associations
18 Milking machines: their sterilization and their efficiency in producing clean milk
19 Late blight and rot of potatoes
20 The fire-blight disease and its control in nursery stock
21 The yellow-leaf disease of cherry and plum in nursery stock
22 Wholesale prices of apples and receipts of apples in New York City for twenty years (in press)

(Extension Circular No. 1)
A plan for a rural community center

READING COURSE PUBLICATIONS

THE DAIRY HERD

According to the census of 1910 there are 1,509,594 cows in the State of New York, which produce about 6,660,000,000 pounds of milk annually, or, on an average, 4,410 pounds for each cow. If the value of the milk be reckoned at the average price of $1.50 a hundred weight, this would mean that the value of the annual product of the average animal is $66.15. Taking into account the high cost of food at the present time, it is at once apparent that the average cow yields very little profit to her owner. This lesson, No. 54 of the Reading-Course for the Farm, is planned to show how the farm dairy herd may be put in a condition to give to its owner a fair return for the labor expended and the money invested. The principles of selection of a breed, judging, and grading up are outlined, as applied to the development of a herd starting with inferior or common cows--although the same principles apply equally well to any herd. There are few herds, even the best of purely bred animals, in which the intelligent application of these principles would not result in marked inprovememt.

PRACTICAL HORSE-BREEDING

New York is a horse-consuming State, annually using up thousands on thousands more horses than are produced within the State. In addition New York provides a very good market for horses, since many of the horses used in New England and the South, as well as for export, pass through the hands of New York horse merchants. The State is therefore without a rival in the horse-marketing business, and in the main horses command a better price in this State than in any other of the Union. In view of these facts it has seemed worth while to prepare some practical information on horse-breeding for the benefit of farmers. Such information is contained in Lesson 56 of the Reading-Course for the Farm.

PLANTING THE HOME VEGETABLE GARDEN

This lesson, No. 58 of the Reading-Course for the Farm, supplements a previous lesson, Home-garden Planning (No. 34 of the course). The new lesson gives suggestions for choosing the garden site and the best type of soil. It explains in detail the manner in which the soil should be prepared before planting, and describes various methods of planting that are practical for the home vegetable garden. Directions are given for planting under glass in hotbeds, cold frames, and greenhouses, and for transplanting to the open field seedlings that have been started under glass. Illustrations are included showing a number of the operations of planting, both in the field and in the house. The making of paper pots into which seedlings may be transplanted is illustrated.

FARM BUTTER-MAKING

The methods of making butter on the farm, as well as the equipment for its manufacture, are necessarily very different in many respects from those of creamery practice, because of the small quantity of product. In Lesson 60 of the Reading-Course for the Farm, attention is called to different methods and equipment that may be used as conditions warrant. The steps in the churning process are outlined, and there is a discussion of possible means of marketing farm-made butter and its by-products. Whether or not the use of starter is advisable on the average farm is considered.

A STORY OF CERTAIN TABLE FURNISHINGS

This lesson, No. 51 of the Reading-Course for the Farm Home, tells the story and shows pictures of some of the earliest knives and forks and spoons that have been found, and briefly traces their history to the present day. The story of pottery and of porcelain is told next, and pictures are shown illustrating the making of pottery and the ppottery that was made as long ago as six thousand years. Our present-day comfort and enjoyment is the result of hard experience and conscious effort on the part of generations that have gone before. We owe most, in a sense we owe all, of our present to the past. Such a realization should arouse in us a feeling of obligation to future generations.

The Department of Home Economics is interested in gathering information concerning heirlooms that are to be found in New York State homes and will be glad to make a collection of photographs of such relics.

RICE AND RICE COOKERY

The home-maker is coming to see more and more clearly how important is her problem of the proper selection of food. Rice deserves to be better appreciated and more commonly used in our northern homes. The housekeeper is constantly discovering new and interesting ways of using it. This lesson, No. 55 of the Reading-Course for the Farm Home, presents a description of rice plants and of rice fields, together with the system of cultivation and irrigation necessary to the growth of rice. Attention is given to the milling of rice, with a description of the processes and the various products, such as unpolished and polished rice, coated head rice, broken rice, and brown, unnatural rice. The nutritive value of rice and its place in the diet are fully considered, also the composition of the cereal and a comparison between polished and unpolished rice as to their digestibility. Receipts are given for the ue of rice as a vegetable and in combination with other foods.

AVAILABLE LESSONS FOR THE FARM, ARRANGED BY SERIES

Residents of New York State may register for one or more of the series mentioned below by addressing The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, New York.

Series		Lessons
The soil	2	The soil : its use and abuse
	42	Tilth and tillage of the soil
	50	Nature, effects, and maintenance of humus in the soil
Poultry	4	Incubation.—Part I
	6	Incubation.—Part II
	10	Feeding young chickens
Rural engineering	8	Knots, hitches, and splices
Farm forestry	12	The improvement of the woodlot
	28	Recent New York State Laws giving relief from taxation on lands used for forestry purposes
	40	County, town, and village forests
The horse	14	Horse-breeding to increase the farm income
	46	Feeding and care of the horse
	56	Practical horse-breeding
Dairying	16	Practical dairy problems
	32	Composition of milk and some of its products
	54	The dairy herd
	60	Farm butter-making
Fruit-growing	18	The renewal of the neglected orchard
	22	The culture of the currant and the gooseberry
	36	Culture of red and black raspberries and of purple-cane varieties
	48	Culture of the cherry
	52	Culture of the blackberry
Farm crops	20	Alfalfa for New York
	24	The rotation of farm crops
Stock-feeding	26	Computing rations for farm animals
Vegetable-gardening	30	Hotbed construction and management
	34	Home-garden planning
	58	Planting the home vegetable garden
Plant-breeding	41	Improving plants by selection or breeding
	38	Principles and methods of plant-breeding
	44	Methods of breeding oats

LESSONS FOR THE FARM HOME

The Cornell Reading-Course for the Farm Home makes it possible for any woman in New York State who cannot attend the College to receive some training in home economics. One lesson is issued each month and is accompained by a discussion paper. The lessons at present available are as follows :

11 The laundry
13 Cornell study clubs
15 Principles of jelly-making
17 The preservation of food in the home.—Part I
19 The preservation of food in the home.—Part II
21 The preservation of food in the home.—Part III
23 Rules for cleaning
25 Saving strength
27 Choice and care of utensils
29 Cost of food
31 Household bacteriology
33 Vegetable-gardening
35 The flower garden
37 Home economics at the New York State College of Agriculture
39 The farmhouse
41 Rules for planning the family dietary
43 The box luncheon
45 Hints for choosing textiles
47 A canning business for the farm home
49 Household insects and methods of control
51 A story of certain table furnishings
53 The Christmas festival
55 Rice and rice cookery

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

THE DEPARTMENT OF PLANT PATHOLOGY

It is common experience that the longer any given crop is grown in a community, and the more persons there are engaged in the production of an intensively cultivated and specialized product, the greater become the difficulties of satisfactory crop production. In many cases this difficulty is directly attributable to the occurrence of disease the cause of which is commonly some parasitic organism. Extensive cultivation of any crop in a given region makes certain the perpetuation and wide distribution of its parasites.

The State of New York is an old section agriculturally, the various crops are subject to many diseases, and growers know only too well the losses entailed by these diseases.

With the accidental discovery, in 1883, of bordeaux mixture as a substance effective in preventing certain fungous diseases of the grape, may be dated the real beginning of the science of plant pathology.

In 1906 plant pathology was recognized as a distinct department at Cornell University by the appointment of an assistant professor of botany in charge of a department, the name of which was changed in the following year to the Department of Plant Pathology. The growth of the department has been steady, and there are now on the staff two professors, three assistant professors, seven instructors, and five assistants.

The department possesses no permanent location. Headquarters were first in the basement and next in an attic, and are now again in a basement—the basement of the Auditorium. Conditions here are not entirely satisfactory for the careful microscopic work necessary in connection with a study of most diseases, and it is greatly to be hoped that more suitable quarters may be available for the department in the near future.

The work of the department is sharply divided into three more or less distinct lines of endeavor—teaching, investigation, and extension.

TEACHING

The student who does not learn how to grow a crop need not study plant diseases, and the student who does not understand the fundamental principles of the growth of plants cannot hope to study successfully the growth and development of parasites that cause disease. These natural limitations make the teaching of the subject of plant pathology fall logically in the third or fourth year of a student's course. A course of study continuing throughout one year is designed to familiarize the student with the nature, cause, and control of plant diseases. In order to teach the fundamental principles of the subject a series of type diseases are presented. These types are so selected that a student may secure a general survey of the field of plant pathology, and at the same time acquire special information on some particular division of plant production. The divisions now presented are farm crops, forestry, pomology, vegetable gardening, and floriculture.

In the second term of the general course the aim is to present the fundamental principles on which a rational basis for plant-disease control may be established. Laboratory exercises, to familiarize the student with the best known practices now in use, form an important part of the work.

A number of advanced and technical courses are offered for graduate students who wish to fit themselves for teaching or for work in an experimental station.

A condensed course covering the general field of plant pathology is open to election by winter-course students.

INVESTIGATION

All the members of the teaching staff pursue investigations, as time will permit, of certain diseases or of control methods, and three men give exclusive attention to research. Graduate students in the department select thesis problems of pathological interest, and the results of their studies are available for publication from the department.

Since the appearance of Experiment Station Bulletin 236, which was published shortly before the separate organization of the department, members of the staff have prepared or assisted in preparing nineteen bulletins issued from the Agricultural Experiment Station, and have published numerous technical articles in various scientific periodicals.

The investigation of plant diseases has been extended by special cooperative arrangements with various agriculturists, agricultural organizations, or special agencies in which financial support is furnished in addition to the regular state maintenance. During the past year $10,200 has been contributed for such purposes. This, exclusive of salaries, is greatly in excess of the regular state maintenance for the department.

Some of the more important lines of investigation in progress by members of the staff or graduate students, enumerated by groups rather than in the order in which they have been instituted, are as follows :

Orchard diseases.—1. Investigation of the apple-tree canker in New York. A careful study is being made of the causal organism, and practicable methods of control are being determined.

2. Winter injury. An investigation of the action of frost and cold in producing injury of apple trees, and a study of secondary factors in the formation of cankers, root rots, heart rot, and the like.

3. Dusting for the control of preventable diseases. In this work an effort is being made to develop an efficient fungicide that may be applied in the dry state to the foliage and the fruit of fruit trees.

4. Crown-gall investigation. A long-term experiment designed to determine the injury caused to apple and peach trees by the crown-gall disease. Other studies for determining the method and time of infection of nursery stock are under way. It is hoped that the investigation will reveal some means of control of the disease.

Vine and bush-fruit diseases.—5. Dead-arm disease of grapes. Work on the nature, cause, and control of this disease is practically completed.

6. Downy-mildew diseases of grapes. An investigation of the causal organism, with methods for control.

7. Raspberry diseases. An investigation of the diseases of raspberries, with special reference to anthracnose, crown rot, and yellows.

8. Gooseberry necrosis. An investigation of the nature and cause of this disease.

Field crops.—9. Bean diseases. An investigation of the various bean diseases, with special reference to the anthracnose disease and the testing of a method of control.

10. Fungous flora of the potato. An investigation to determine what fungi are associated, either harmfully, beneficially, or innocuously, with potatoes.

11. Grain-smut investigations. Studies for determining more efficient means of controlling these diseases.

12. Hop diseases. An investigation of the various diseases of the hop, with special reference to the mildew disease.

Truck crops.—13. Investigations of ginseng diseases. A large number of diseases of this crop are under investigation.

14. Celery-storage investigations. A study of the keeping qualities of celery under refrigeration, with special reference to the keeping of diseased stock.

Diseases of flowers and florist crops.—15. Peony diseases. An investigation of the bud blast, leaf blight, stem rot, and root knot of peonies.

16. Violet diseases. A special study of the black-root disease of violets.

17. Gladiolus diseases. An investigation of the various diseases of gladiolus corms, and of foliage diseases.

Nursery-disease investigations.—18. A large number of diseases occurring on nursery stock are receiving attention.

Forest and shade-tree diseases.—19. Chestnut-bark disease. Extensive investigations of the nature and cause of this disease have been made. No practicable means of control has been found as yet.

20. Wound dressings. An investigation of the various methods of treating diseased trees in order to prolong their life.

Fungicide investigations.—21. Spraying. A study of the types of fungicides in their relation to efficiency and to their availability for general use.

22. Iron sulfate. Studies for determining the relative fungicidal value of sulfate of iron.

23. Soil fungicides. An investigation of the control of certain potato, onion, aster, and carnation diseases by the application of fungicides to the soil.

In addition to the above lines of work, which are major problems, many other diseases receive more or less attention as time permits.

EXTENSION

Nearly all the time of two members of the staff is spent in the extension phase of plant-disease work, and in addition the other members of the staff assist from time to time as is necessary.

The extension work consists in presenting to the grower the best methods of controlling the diseases of his cultivated crops and in teaching him the underlying principles of disease control. This is done by giving courses in plant diseases at extension schools; by giving addresses at meetings of state growers' associations, at granges, at farmers' clubs, and at meetings on farms during the growing season; by demonstrating the methods of control of various diseases on request from any part of the State; by exhibits at state and county fairs, and at meetings of various agricultural organizations; by publishing bulletins and circulars and distributing them among growers; by diagnosing diseases on specimens sent in; and by answering requests for information regarding the control of various diseases.

In addition to this work, graduate students in plant pathology located in the field laboratories during the summer give invaluable information to growers of the vicinity regarding successful and practicable methods to be employed in the control of the various plant diseases prevalent in the community.

GENERAL ANNOUNCEMENTS

AGRICULTURAL CONTESTS

(Department of Rural School Education)

There is education for boys and girls in well-directed competitions. The struggle to secure a product that excels; the ability to undertake a definite task and complete it; the satisfaction resulting from a finished product; the courage to be square and honest in doing the work; and the gradual development of power to succeed without vanity and to fail without despair—all are fundamental to the building of character. Persons who know children realize this, but they realize also that very different and most serious results may come when competitions among young folk are regarded as ends in themselves rather than as a means to the great end—training for mature life. It may be well, therefore, to present a few considerations on this important subject.

Since the permanent development of better country-life education must come through the boys and girls, it is natural that the workers in this field should at once see the necessity of beginning with the young persons in a community. To those who have worked for many years with boys and girls in rural districts, it is very manifest that there has been much exploitation of children for the purpose of making propaganda along agricultural lines. For this reason the Department of Rural School Education at the State College of Agriculture is ready to place itself on record with the statement that in work with children it will give cooperation only when such work is personally supervised by responsible persons who have permanent interest in the boys and girls. The persons best fitted for this are the district superintendents of schools and the school teachers. Clubs that are organized and disorganized in a few weeks mean but little and are sometines harmful; children's contests that are not sufficiently supervised to make them wholesome, honest competitions may become immoral influences. School gardens started and never finished provide concrete demonstration of wrong educational management.

The Department of Rural School Education, therefore, is closely cooperating with the New York State Education Department in all matters that concern children in the elementary schools, and has refused to enter any independent activity in such schools in the interest of better agricultural education for young persons. It has been the experience of this department that worthy projects in the interest of country-life development are encouraged and fostered by the New York State Education Department.

The best means of bettering country-life conditions is by giving instruction to teachers and to boys and girls in the schools. Rural superintendents and teachers are fully awake to the fact that what is needed is knowledge along the various lines that form the background of the farming community. The teachers are ready and willing to learn and to teach. The function, therefore, of all who have had training in country-life education is to give inspirational messages and actual instruction in subject matter, leaving the organization of boys and girls for receiving such knowledge to the persons who are responsible for their education and who are continually at hand to direct them wisely.

Workers in the interest of better country life will strengthen their message to boys and girls if it is given at times and places indicated by the district superintendents of schools. These rural educators have the knowledge of conditions that will enable them to use all of this splendid cooperative aid to the highest educational advantage of the children.

Parents and taxpayers in rural districts should realize the value of competitive effort in the education of boys and girls; they should aid the district superintendent in organizing agricultural contests on a permanent basis; they should urge the children to enter the contests and encourage them to follow the rules honestly and faithfully; and they should watch themselves lest unconsciously they introduce a suggestion of dishonesty in their eagerness to aid a favorite boy or girl.

The question of prizes for contest work is a very serious one, and should be left to the district superintendent or to some person chosen by him. Children have been given prizes who have not earned them. A prize is a reward of merit, and should carry little intrinsic value. Large cash prizes are to be discouraged. Trips to places of interest may be legitimate rewards, provided some one in the community knows that the boys and girls really merit the honor, and provided further that each child is under the personal care of an educational leader during the trip.

There are certain supervisory districts in the State in which the district superintendents are wholly occupied with fundamental problems, such as the improvement of school buildings and grounds and the supervision of teaching. These superintendents have not as yet been able to take up the work with agricultural contests. In such districts it will be wisdom to wait until the time comes when the local and permanent development of the contest work can take place. More than fifty superintendents held contests last year; many others are beginning the work this year, and it will be only a short time before contests are held in all the supervisory districts of the State.

Recognizing, then, the importance and the deep educational value of agricultural contests, and believing that a safe and far-reaching program can be worked out in cooperation with the State Education Department through its local representatives, the district superintendents of rural schools, the Department of Rural School Education urges most earnestly that all persons directly or indirectly interested in this matter be guided by the educational leaders in any endeavor to educate boys and girls by means of farm experiences and practices.

DEPARTMENT OF SOIL TECHNOLOGY

Drainage.—During the spring months the need for better drainage of the soil is usually most apparent. The persistence of standing water on the surface of the soil and in shallow holes that reach into the subsoil; the "heaving," or lifting, of shallow-rooted plants, sometimes called winterkilling; and the lateness with which the soil gets dry enough to permit tillage operations—these are the most noticeable evidence of lack of drainage. Later in the season these conditions are manifested in the shallow rooting of crops and in the tendency of the soil to be cold and to become puddled and hard—all resulting in low crop yields.

Large areas of land in the State—flat lands and hills alike—are too wet for the most profitable tillage. Especially does this statement concern land in farms and devoted to tilled crops, where there is constant loss in the seed, the labor, and the manures applied to the soils. At this season every farmer should examine his land anew for evidences of the need for drainage. After a careful consideration of the effects of good drainage on the soil, the need for drainage may be more clearly observed.

The Department of Soil Technology is in a better position this year than it has been in previous years to give assistance to farmers in determining the need for drainage and in planning an effective system of drains. Calls for aid will be met as rapidly as possible, and so far as practicable in the order received. Where several farmers in the same community have similar drainage problems, it will reduce the traveling expenses to be borne by each if all the places can be visited on the same trip.

A limited number of field meetings will be held at places where the drainage problems involved are sufficiently varied to be of general interest to the community. Persons wishing to arrange such meetings for their community should communicate with the department as soon as practicable.

Early spring plowing.—New York has a generous water supply for the production of large crops, and the problem to be considered is its utilization. Early plowing is an important means of conserving the soil moisture that is collected during the winter. As early in the spring as the land will permit working without puddling, it should be plowed. A delay of a week may permit the loss of enough water to produce twenty bushels of corn or potatoes. Early tillage of fall-plowed land has a similar value.

Top-dressing meadows.—This is best done in April, before growth begins. On old sod having a fair stand of plants which are to be plowed under at the end of the season, an application of 150 to 200 pounds of nitrate of soda will usually prove most profitable. If the meadow is to be continued, it is usually better to apply a complete fertilizer containing about eight per cent of nitrogen and five per cent each of phosphoric acid and potash. A mixed fertilizer composed of those materials is suitable. It can be obtained in an application of 150 pounds of nitrate of soda, 100 pounds of acid phosphate, and 30 pounds of muriate of potash.

Report of state inspection of fertilizers.—Requests are frequently made to this College for the reports covering the inspection and analysis of the brands of fertilizer sold in the State. Requests are also made for a list of dealers in fertilizers. It should be noted that the inspection work on fertilizers is done by the State Agricultural Experiment Station at Geneva, to which application should be made for the annual bulletin giving the results of analyses of all brands of fertilizers licensed for sale in the State, together with the names of the companies by whom they are manufactured. There is no charge for this report.

DEDICATION OF THE NEW FORESTRY BUILDING

The new Forestry Building is now nearly ready for occupancy. The day assigned for the dedication is May 15 and the occasion will be one of great interest. The program is nearly complete and will appear in detail in the next issue of the Announcer. Morning, afternoon, and evening sessions are being arranged, and good speakers from within and without the State have been engaged who will speak on various lines of forestry work. A large attendance is already assured. The Directors of the American Forestry Association will meet here on this occasion, and on May 16 a meeting of the Society of American Foresters is to be held. The Forestry Club has arranged for an excursion on Cayuga Lake.

EXTENSION WORK IN THE DEPARTMENT OF FORESTRY

The addition of an Extension Professor of Forestry at the beginning of the college year has made it possible to give special attention to the different phases of forestry that are of vital interest, not only to the farmer, but also to other owners of forest properties. The lines of work being developed are:

1. Lectures before extension schools, farmers' institutes, and granges.
2. Cooperation with city water boards in watershed planting.
3. Woodlot and timber-tract examinations and reports.

A typical example of the cooperative work with city water boards is that with the city of Cortland, for which the department is making a planting plan for land owned by the city in the Cortland watershed, which is the source of the water supply for that city. The planting will extend over a period of four or five years and will be under the supervision of the Department of Forestry.

The more important features of a planting plan are: location; area of different sites to be planted; purpose of plantation; detailed recommendations for planting, which include cost of plant stock, cost of planting, method of planting, care and protection, species and spacing, and method of subsequent treatment.

Requests for advice as to the proper methods of handling woodlots and timber tracts are rapidly increasing in number. In such cases a personal examination is made in company with the owner, tenant, or farm superintendent; and where the tracts are small, say up to one hundred acres in extent, the entire area is carefully cruised and such trees are marked for cutting as would bring about the desired results from the standpoint of forestry.

The wishes of the owner, and the density, age, and condition of the forest, are the main factors that determine the methods of management to be applied. Such features are incorporated in a report to the owner of the property, and include location and area of woods, species and condition of the trees, past history of the stand, timber and wood estimates, markets, and methods of management. The cost of all cooperative work in forest planting and woodlot examination must be borne by the owner or the applicant, and includes only that of traveling and other expenses.

COST RECORDS FOR VEGETABLE CROPS

Three years ago the Department of Vegetable Gardening devised a simple system of cost-record-keeping for vegetable crops. The equipment consists of a cover and two pads of blanks, one for cost items and one for income items. The former is so arranged as to provide for both labor cost and actual expenditure on the same sheet. The whole book is 6½ x 4 x ½ inches, with waterproof cover. The experience of the past season has suggested several minor improvements, and the department is now in a position to carry the work forward on a larger scale.

It is desired to place books in the hands of a large number of growers of vegetables, without charge but on condition that the duplicate sheets that are provided be sent to this department on the first of every month. The records are regarded as confidential. The department agrees to make a total of results, and will forward this to the grower at the end of the season. Records should be addressed to Paul Work, College of Agriculture, Ithaca, New York.

PUBLICATIONS

BULLETIN 339—EXPERIMENTS CONCERNING THE TOP-DRESSING OF TIMOTHY AND ALFALFA

A bulletin describing experiments in top-dressing with fertilizers and with farm manure a timothy meadow and an old alfalfa meadow has just been published by the Cornell University Agricultural Experiment Station. A series of field plats were subjected to a cropping rotation of timothy three years, corn, oats, and wheat each one year. Fertilizers or farm manure were applied to the timothy but not to any of the grain crops, different applications being used on different plats. The experiment has been conducted for nine years.

The results show that fertilization of the soil for timothy increases its productiveness for succeeding years. The greatest benefit was derived by the corn crop, which immediately followed the timothy. The oat crop experienced the next greatest benefit and the wheat the least. Tabulations of the financial gains demonstrate that the use of fairly large applications of fertilizers was profitable, resulting in a net gain of as much as $65 an acre for the six years and giving a return of $1.67 for every dollar invested in the fertilizer.

Commercial fertilizers, while not superior to farm manure, were about equally effective. On grain crops commercial fertilizers are usually of less value than farm manure judiciously applied. This experiment indicates, therefore, that it is good practice to apply commercial fertilizers to timothy and thus save the farm manure for other crops.

Alfalfa that had been growing for six years was laid off in plats, which were top-dressed with (1) farm manure, (2) acid phosphate, (3) acid phosphate and muriate of potash. All these treatments caused an increase in the yields of hay. Farm manure produced a financial loss; the other treatments resulted in monetary gains, acid phosphate applied singly being superior in this respect.

BULLETIN 341—CROP YIELDS AND PRICES, AND OUR FUTURE FOOD SUPPLY

In this bulletin a careful study is made of the yields and the prices of various products during many years, and the question of the future food supply of the country is discussed. The conclusions reached are summarized as follows :

The wholesale prices of farm products are not very high when compared with the average for the past seventy-three years. The prices that farmers receive for animal products are higher than the average, but the prices received for crops are generally as low as, or lower than, the seventy-three-years average. For a generation after the opening of the western prairies, prices were extremely low. In comparison with this period prices are high, but, when comparing with a long period of time, the prices that farmers receive are not very high, as is seen from the following table of average wholesale prices in cities :

	Average for 73 years	Average 1905 to 1912
Corn in New York (per bushel)	$0.66	$0.66
Winter wheat in New York (per bushel)	1.25	1.04
Cotton in New York (per pound)	0.154	0.118
Potatoes (per bushel)	0.65	0.62
Oats in New York (per bushel)	0.45	0.47
Hogs (per hundred)	5.71	6.78
Beeves (per hundred)	5.74	6.37
Sheep (per hundred)	4.00	4.29
Butter (per pound)	0.244	0.262
Eggs (per dozen)	0.226	0.287

Crop yields east of the Mississippi River have been rapidly increasing in the last ten to fifteen years. Before that time there was a period of low yields, because of low prices.

Farmers know how to raise much larger crops, and do raise larger crops whenever they are convinced that prices will be high enough to make it pay to do so.

In nearly every county in the United States there is considerable land that can be brought into use by clearing, drainage, irrigation, or other means. This land will allow for a considerable increase in production.

But there is very little that can be done to increase production without increased cost. Land that must be cleared, drained, irrigated, green-manured, or heavily fertilized is expensive land. The bushels grown on it are expensive bushels. After a fair yield has been secured, every bushel that we get usually costs more than the preceding bushel. Farmers quickly adjust their yields to prices. If present prices continue, production will be increased. If prices rise, production will be considerably increased.

There does not seem to be any likelihood that prices paid to farmers can be permanently lowered, but there are ways of decreasing the cost of food to the consumer.

The machinery of distribution after products leave the farm is unnecessarily expensive. Much of this cost can be eliminated.

Of necessity we are using more foods that come from plants and less animal foods.

The popular suggestions to reduce the size of farms and to import cheap labor to help farm are more likely to result in expensive, rather than cheap, food. Small farms that follow the same type of farming usually have less left to sell than do moderate-sized farms, because so much is consumed by the horses and the men who work the land.

In consideration of the striking need for phosphorus over large areas of the United States, an investigation of the phosphorus supply with a view to restriction of export is recommended.

A restriction of immigration by raising the standard for admission is strongly advised.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
Entered as second-class matter at post office, Ithaca, New York

W. A. STOCKING, JR., Acting Director — A. R. MANN, Editor

VOL. 3 — MAY, 1914 — NO. 8

This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

OPENING OF FORESTRY BUILDING

MAY 15, 16, 1914

A cordial invitation is given to the people of the State to visit the New York State College of Agriculture on Friday and Saturday, May 15 and 16, and to be present at the opening of the Forestry Building. There will be opportunity to hear prominent speakers from within and without the State, and the occasion is to be a notable one in the history of the College. The program, which is of unusual interest, is given below. All morning and afternoon meetings will be held in room 122 of the Forestry Building, and the evening meeting on Friday will be held in the Assembly Hall of the Main Building.

FRIDAY

Morning session, 10 o'clock

Chairman—W. A. Stocking, jr., Acting Director of the New York State College of Agriculture
The forest. L. H. Bailey, Ithaca, New York, former Director of the New York State College of Agriculture
Forestry on the farm. W. H. Vary, Watertown, New York, Master of the New York State Grange
Forestry as an investment. Charles M. Dow, Jamestown, New York, Director of Letchworth Park and Arboretum
The work of the New York State Conservation Commission. C. R. Pettis, Albany, New York, Superintendent of New York State Forests
Inspection of the Forestry Building

Afternoon session, 2 o'clock

Chairman—W. H. Vary, Master of the New York State Grange
Lines of principal effort in American forestry for the next decade :
- In training foresters. James W. Toumey, New Haven, Connecticut, Director of the Yale Forest School
- In lumbering. F. L. Moore, Watertown, New York, President of the Empire State Forest Products Association
- In making public opinion effective. H. S. Drinker, South Bethlehem, Pennsylvania, President of the American Forestry Association, President of Lehigh University
- In New York State. J. S. Whipple, Salamanca, New York, President of the New York State Forestry Association

Visit to points of interest on the campus

Evening session, 8 o'clock

Chairman—T. F. Crane, former Dean of the College of Arts and Sciences, Cornell University
Lines of principal effort in American forestry for the next decade :
- In national forestry. H. S. Graves, Washington, D. C., Forester, United States Department of Agriculture
- In the national movement for conservation. Gifford Pinchot, Milford, Pennsylvania, President of the National Conservation Association

The Directors of the American Forestry Association will hold a business meeting in room 214, Forestry Building, on Friday morning, May 15, at 11 o'clock.

Conference of Forest School Clubs

Delegates to the Conference of Forest School Clubs will hold a business meeting in room 304, Forestry Building, on Friday morning, May 15, at 11 o'clock.

SATURDAY

Open meeting of the Society of American Foresters—10 a. m.

Chairman—B. E. Fernow, President of the Society
Lines of principal effort in American forestry for the next decade :
- In state forestry—The East. Alfred Gaskill, Trenton, New Jersey, State Forester of New Jersey
- In state forestry—The Middle West. Filibert Roth, Ann Arbor, Michigan, Director of the Department of Forestry, University of Michigan
- In the Society of American Foresters. B. E. Fernow, Toronto, Ontario, President of the Society of American Foresters

Cornell Forestry Club trip

All guests are urged to remain for a boat ride on Cayuga Lake and a camp-fire supper, to be given by the Cornell Forestry Club on Saturday afternoon and early evening. The boat will not leave the pier until after the track meet between the University of Pennsylvania and Cornell, and arrangements will be made to take guests direct from the meet to the boat. The camp-fire supper will be on Crowbar Point, and the return to Ithaca will be made in time for guests to take evening trains.

SCHOOL FOR LEADERSHIP IN COUNTRY LIFE

JUNE 23—JULY 3, 1914

The three successful conferences of rural social workers at the College of Agriculture, inaugurated in response to a demand for a training school of this character, have led to the establishment of the School for Leadership in Country Life as a part of the regular work of the College. Plans are completed for the fourth conference, to be held June 23 to July 3, 1914. This time, immediately preceding the Summer School in Agriculture, has been found to be one of the most convenient for rural workers.

The school is designed primarily to meet the needs of persons who are interested in the betterment of rural social conditions, and, while the school is open to all persons interested in the work, it is especially desired to have in attendance rural ministers, secretaries of Young Men's and Young Women's Christian Associations, officers of men's brotherhoods and women's societies, boy scout masters, school principals and teachers, editors, officers of granges, institute lecturers, and other active rural workers.

One of the principal advantages of the school is the opportunity given for personal discussion with members of the staff as well as exchange of ideas by members of the schools, nearly all of whom are active rural workers and many of whom have had considerable successful experience.

The courses are graded as first-, second-, and third-year, in order to meet the needs of those new in the work as well as those of more experience.

First-year courses : For first-year students, courses will be offered in principles of rural sociology; the rural mind; principles of leadership; principles of rural economy; rural health and hygiene.

Second-year courses : For second-year students, courses will include the social functions of rural institutions; rural personal ideals; study of the individual; survey of rural economic conditions; psychology of the country girl; rural recreation.

Third-year courses : The third-year courses will include rural social engineering; applied rural psychology; social organization; cooperation; extension teaching in agriculture; rural social survey; group organization for girls' work.

The heaviest work will come in the forenoon, leaving the afternoons for informal conferences, demonstrations of rural recreation, play, and games, field trips, tramps, and inspection of the buildings, grounds, and farms of the College. In the evening there will be illustrated addresses on country-life questions and institutions, entertainments, and the like.

Exhibits.—A special feature will be exhibits illustrating the subject matter of the courses and matters of general interest, reading-courses, correspondence courses, types of bulletins, farm journals, survey forms, rural recreation equipment, and the like.

The place.—Ithaca is situated in Tompkins county at the head of Cayuga Lake, one of the largest of the "finger lakes" of Central New York, and Cornell University is on a hill overlooking the lake and the valley. The natural beauty of the scenery, the many delightful walks and drives along the lake and through gorges, ravines, and woods, and the healthfulness of the climate make the city an ideal place for a vacation. Adjoining the College of Agriculture is the sixty-acre playground of Cornell University.

Expenses.—There is no registration fee for the school, but persons in attendance will pay their own traveling and entertainment expenses. Board and room may be obtained near the College at $5.50 a week and upward. Tents will be erected in a grove near by for the accommodation of those who desire to be close to the school, and the out-of-door life adds greatly to the vacation feature.

Railroads.—Ithaca may be reached by either the Lehigh Valley or the Lackwanna Railroad, both running through sleeping-cars from New York. The Lehigh Valley runs through trains from both Buffalo and New York; the Lackwanna is a branch leaving the main line at Owego. There is also the Ithaca-Auburn Short Line, electric part of the way, connecting with the New York Central at Auburn.

Information.—Programs, information concerning the conference, and information as to living while in Ithaca, may be obtained by adddressing The Secretary, College of Agriculture, Cornell University, Ithaca, New York.

THE SUMMER TERM

JUNE 8 TO SEPTEMBER 23, 1914

The New York State College of Agriculture at Cornell University announces the establishment of a full summer term of instruction, the first session of which will begin on June 8, 1914, and will close on September 23, 1914.

The college year in Cornell University is divided into two terms, or semesters, extending from the last of September to the early part of June. It has been the desire of the Faculty of Agriculture for many years to have the College in operation the year round, so that the summer season, which is especially advantageous in the teaching of certain phases of agriculture, may be utilized. This desire is now realized by the establishment of a full summer term which is coordinate with the present fall and spring terms. So far as is known, this is the first full summer term to be offered by any College of Agriculture in this country.

The primary purpose of the summer term is to take advantage of the growing season in teaching subjects to students regularly registered in either graduate or undergraduate courses. The facilities of the College are available for graduate study throughout the summer. In addition, opportunity is provided for advanced students, teachers, and others, who are otherwise engaged during the regular school year, to have the advantage of a long period of special instruction.

In view of the fact that the introduction of the new term affects the organization of the entire college year, it will be possible in the summer of 1914 to offer only a limited number of courses. After the present year, when the readjustment will have been made, it is expected that courses will be given by most of the departments. A sufficient number of courses are offered for the present summer, so that students will have considerable choice in arranging their schedules.

The courses.—The courses to be offered include, among others, the following : botany and plant physiology, dairy industry, entomology, floriculture, plant-breeding, plant pathology, pomology, poultry husbandry, farm mechanics, farm structures, farm engineering, soil management, and vegetable gardening.

Admission.—Applicants for admission to the summer term as regular students in the four-years college course must, in addition to satisfying entrance requirements in full, have completed all the required work of the first two years of the regular course, as outlined in the announcement of the College, or the substantial equivalent thereof. Persons who have had at least two full years of farm experience, and in addition are at least twenty-one years of age or can satisfy the regular entrance requirements of the College, may be admitted as special students.

Tuition.—Tuition is free to bona fide residents of New York State, and to students registered in the Graduate School for graduate work in agriculture only. All others will pay a tuition fee of $62.50 for the term.

Announcements.—Printed announcements describing the summer term in detail may be obtained on application to the Secretary, College of Agriculture, Ithaca, New York.

THE SUMMER SCHOOL

JULY 6 TO AUGUST 14, 1914

Announcement is made of the fourth session of the Summer School, to be held at the New York State College of Agriculture at Cornell University, July 6 to August 14, 1914. The primary object of the Summer School in Agriculture is to further agricultural education by aiding those who are engaged in it. The courses are arranged to meet the needs of the following classes :

1. Persons who desire to teach agriculture, nature study, and home economics, or who desire to fit themselves to supervise such instruction. The announcements of the several departments show a wide range of instruction. This instruction is adapted to the needs of teachers who desire to supplement their present knowledge of agriculture or to start in a new field. In addition to instruction in the classroom, the university library, the college and departmental libraries, the laboratories, the greenhouses, the gardens, and the farms are available for use.

2. Persons who desire to pursue investigations in agriculture. Some of the courses are advanced, and therefore suited for specialists who wish to pursue their individual study. The facilities of the College are at the disposal of persons desiring to engage in special investigations.

3. College students in Cornell and other universities who wish to use part of the summer vacation for additional study. In the case of graduates some of the work may be counted toward an advanced degree. Undergraduates may anticipate work and thereby shorten their course, or may make up existing deficiencies.

4. Students entering the University who desire to secure surplus credits at entrance, and thereby to shorten their course.

The courses.—The courses to be offered include the following: agriculture for high schools, agriculture for elementary schools, principles and practice of feeding animals, animal-breeding, stock-judging, biology, botany, plant physiology, agricultural chemistry, household chemistry, dairy industry, entomology, farm crops, floriculture, forestry, meteorology and climatology, nature study, natural history of the farm, plant-breeding, plant pathology, fruit-growing, poultry husbandry, rural economy, rural education, soils, vegetable gardening, foods, human nutrition, household management, household sanitation, sewing, school methods in home economics, and extension work in home economics.

The University Summer Session, of which the Summer School in Agriculture is a part, offers courses in education, psychology, language, history and government, economics, music, mathematics, physics, chemistry, geography, geology, zoology, drawing, and engineering. Properly qualified persons may elect these courses on the payment of the regular tuition fee.

Admission.—There is no examination for admission to the Summer School in Agriculture, but applicants should have completed a high school course or the equivalent. Each person must satisfy the instructor in charge of any course that he is qualified to pursue the work of the course.

Tuition.—Tuition in courses in the Summer School in Agriculture is free to residents of New York State, and to students registered in the Graduate School for graduate work in agriculture only. All others will pay a tuition fee of $30, whether one subject or more be taken.

Announcements.—The complete announcement of courses offered in the Summer School in Agriculture may be obtained on application to the Secretary, College of Agriculture, Ithaca, New York.

FARM BUREAUS IN NEW YORK STATE

Farm-bureau work is rapidly passing out of the experimental stage in New York State. It has now become a recognized part of the great extension movement in agriculture which is likely to be made permanent by the impending passage of the Smith-Lever bill by Congress. The farm-bureau, however, is more than a phase of extension work; it is a local organization of farmers. Its chief purposes are to unite local farm interests, to develop local agriculture, to make farming more profitable and country life more enjoyable, and to act as a local clearing-house for agricultural information. It is local in origin, receives most of its support at home, and is supervised and aided by a central office through a state director.

Financial support of farm bureaus.—For the information of persons not familiar with the means of financial support of the bureau, it may be said that the largest contributors are usually the local boards of supervisors who have appropriated sums varying from $1000 to $4000 for the work. When the bureau is properly organized and the county agent selected by the local board of directors has been approved by the state director, the State contributes $600 to each bureau through its Department of Agriculture at Albany, and the United States Department of Agriculture appoints the agent a collaborator, granting him the franking privilege. Local funds obtained by subscriptions of railroad and other corporations and of individuals, and from $1 memberships in the state farm bureau association, constitute the remainder of the financial resources of the bureaus. A farm bureau cannot be operated successfully on less than $2500 a year, and $3000 is better. Several bureaus have resources of $4000 to $6000 a year.

The experience of the counties in the work has taught the central office (by a cooperative agreement this office represents the State Department of Agriculture, the United States Department of Agriculture, and the State College of Agriculture) that efficient organization is prerequisite to the most successful work on the part of the county agent. Therefore the central office is urging that there be formed in each county a farm bureau association with a membership representative of the farming interests of the county. This should preferably be formed before the county agent begins his work.

The interest and assistance of city, professional, and business men is helpful; but an active interest on the part of farmers themselves is essential. It vitalizes the bureau and increases its ability for service. Farmers must feel that the farm bureau is their institution, supported by them, made effective by their efforts, and that it is not merely an institution for bestowing benefits on them. They must look on it as an organization of their own, with and through which they may work cooperatively to secure benefits for themselves.

Forming an association.—The following method of procedure in forming a farm bureau association is suggested:

1. Any person or persons may call together a number of interested and representative farmers and others at some central point in the county in order to discuss the desirability of establishing a farm bureau to measure as nearly as possible public sentiment on the question, and to consider ways and means.

2. If this committee thinks it best to organize a farm bureau, a general meeting should be called for this purpose as soon as it can be properly advertised throughout the county. The State Director of Farm Bureaus, whose office is at the State College of Agriculture, Ithaca, New York, will attend this meeting if desired, and will give the experience of other counties in organizing bureaus, as well as suggestions as to details.

3. This public meeting may, if it chooses, resolve itself into a farm bureau association and adopt a constitution and by-laws. Farm Bureau Circular No. 1, published by the State College of Agriculture, contains a model form of government which may well be followed. Necessary officers are president, vice-president, secretary, and treasurer; the last named should be under bond.

An executive committee should be chosen. This should consist of the president, the vice-president, the secretary, and four other members elected by the association. As commonly organized at present, one of these members represents the grange, and one the board of supervisors if it has contributed to the support of the bureau; another may represent other agricultural interests in the county, such as the superintendents of schools, farmers' clubs, and the like.

An advisory committee should be appointed or elected to represent every locality in the county. Each of these committeemen should be held responsible for the local organization, membership, and work of the farm bureau agent in his own community. He should be a local assistant to the farm bureau agent, introducing him to farmers and helping him to arrange for local meetings, demonstrations, and the like. These committeemen may well be appointed by the president. They should be such as command the respect and confidence of their neighbors, and they should have the time and the inclination to promote the work actively.

Counties having farm bureaus.—The first farm bureau in New York State was formed in Broome county, where an agent began work on March 20, 1911. This was followed by the formation of like organizations in Chemung and Jefferson counties in the spring of 1912. Since then the organization of farm bureaus has been rapid. There are now twenty-five counties in the State having farm bureau agents at work. In addition to these, Westchester and Nassau counties have organized bureaus, and several other counties are considering the matter. The list of counties having farm bureaus and the names and addresses of their agents are as follows:

Allegany—F. C. Smith, Wellsville
Broome—F. R. Minns, Chamber of Commerce, Binghamton
Cattaraugus—H. K. Crofoot, Olean

Cayuga—J. R. Teall, Business Men's Association, Auburn
Chautauqua—H. B. Rogers, Chautauqua
Chemung—G. P. Scoville, Chamber of Commerce, Elmira
Clinton—C. B. Tillson, Plattsburg
Cortland—E. H. Forristall, Cortland
Delaware—T. M. Avery, Walton
Dutchess—F. H. Lacy, Poughkeepsie
Erie—W. L. Markham, Chamber of Commerce, Buffalo
Franklin—O. F. Ross, Malone
Herkimer—M. E. Chubbuck, Herkimer
Jefferson—F. E. Robertson, Watertown
Monroe—L. A. Toan, Chamber of Commerce, Rochester
Montgomery—A. S. Merchant, Canajoharie
Niagara—E. H. Anderson, Board of Trade, Lockport
Oneida—G. W. Bush, Chamber of Commerce, Utica
Onondaga—S. A. Martin, 113 Court House, Syracuse
Oswego—H. M. Doyle, Oswego
Otsego—F. S. Barlow, Board of Trade, Cooperstown
St. Lawrence—C. S. Phelps, Canton
Tompkins—H. E. Babcock, Ithaca
Ulster—W. H. Hook, Kingston
Wyoming—H. M. Bowen, Perry

FARM BULLETIN PUBLICATIONS

The following bulletins on farm-bureau work are now available :

Farm Bureau Circulars, published by the New York State College of Agriculture at Cornell University :

1 Farm bureaus : what they are and how they are organized and financed in New York State

2 Broome county : an account of its agriculture and of its farm bureau

3 Dr. L. H. Bailey on the farm-bureau movement

Circular No. 93 The farm-bureau movement in New York State (Published by the New York State Department of Agriculture at Albany)

SUMMER EMPLOYMENT

In the spring of each year the College of Agriculture is called upon to find summer employment on farms for a considerable number of its students. For the most part these students are strong, rugged men, ready to work. They are not working at agriculture because they cannot find something else to do, but because they intend to make farming their life work. Some of them are without farm experience, while others are fully qualified to assume the managment of places. The former class are seeking experience, and desire points on well-managed farms run by fair-dealing men who will aid them in obtaining the training that they need. They expect to be paid just what they are actually worth. They will be getting their education, and at the same time, in the majority of cases, will return good value to their employers. A considerable number of farmers in the State have taken students year after year and have found the experience on the whole to be valuable and helpful to themselves; and the students are fully appreciative of the help that they have received.

The State College of Agriculture must look to the farmers of the State to aid in the education of the young men who are to be our future farmers, and it desires to make known the demands that are now upon it. The young men who are available for employment this summer fall into four general classes :

1. Persons who expect to study at the College of Agriculture, but wish to gain a practical knowledge of farming before they come. They are available at almost any time throughout the year. They are usually young men from cities who wish to become farmers. The College knows nothing about these persons except what is shown by correspondence with them. Many of them have been highly successful as farm help.

2. Students who want summer work chiefly for experience, but also in order to earn what they can. Ususally they have had some farm experience, but not much; owing to their eagerness to learn, however, they will be different from the ordinary "inexperienced hand." These students can take work about June 10 and can continue until about September 15.

3. Students experienced in farm work who desire places for about the same period as above, in order to earn money to enable them to continue their studies at college. They will possess technical knowledge of certain kinds of farming and should prove much more efficient then the ordinary "experienced hand."

4. At the close of the college year there are usually a number of students who have finished their studies and desire positions on farms as superintendents or managers.

Farmers who think they could use any of these four classes of help this summer are invited to write to the Department of Farm Practice, College of Agriculture, Ithaca, New York, stating which class they can employ and the kind of farming in which they are engaged. We have demands from students for a great variety of positions, so that *we desire to hear from general farmers and from poultry, fruit, dairy, nursery, vegetable, and other farmers.* As the students will be leaving soon after the first of June, *farmers should make their wishes known at an early date.*

Young men will be available about June 10 for a wide range of other positions in the field of agriculture, with commercial firms, and in professional positions in teaching, experimental work, and the like.

GENERAL ANNOUNCEMENTS

VILLAGE-IMPROVEMENT WORK AND CIVIC ASSOCIATIONS

The Department of Landscape Art desires to promote village- and city-improvement work more actively throughout the State. To this end it is seeking the cooperation of persons interested in such work in towns and villages. All persons who are interested in any phase of village or town improvement are requested to correspond with the department, stating what has been done in their localities and what further development is contemplated. The department desires parparticularly to get the names of all civic improvement organizations and of the presidents of such organizations. Address Department of Landscape Art, College of Agriculture, Ithaca, New York.

INCORPORATION OF TOWNS AND VILLAGES

The Department of Landscape Art is seeking information concerning the advantages of incorporation to towns and villages. In the preparation of a bulletin touching on this subject, the department needs all the statistics of this nature that can be procured. The question is always before the small community, When shall we incorporate ? Many very small villages lay their prosperity to early incorporation. But there is always a pro and con to any issue, and especially to one as important as this. Those who have been identified with the incorporation of their villages and can remember the circumstances attending such incorporation will do us a considerable service, as well as their younger brother villages, if they will write us briefly of their experiences in this matter. Address, Department of Landscape Art, College of Agriculture, Ithaca, New York.

ATTIC DUST AND TREASURES

The April lesson of the Reading-Course for the Farm Home, No. 61, is now in press, and it is hoped that the housekeepers of New York State will receive and read it before they do their spring house-cleaning. Its title, "Attic Dust and Treasures," will recall to many women a lecture given during Farmers' Week on the fate of historical material at house-cleaning time. It is one and the same subject, and it is being eagerly pressed at this time. Readers will find definite suggestions as to what is worth saving for the good of future generations in towns, county, and State. The lesson will be sent on application to the Reading-Course for the Farm Home.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

Published on the first of every month by the New York State College of Agriculture at Cornell University
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W. A. Stocking, Jr., Acting Director A. R. Mann, Editor

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

GENERAL ANNOUNCEMENTS

THE SUMMER SCHOOLS

Attention is again called to the important schools to be held at the New York State College of Agriculture at Cornell University this summer :

The Summer Term.—Beginning on June 8, and continuing through September 23, the regular third, or summer, term of the College will be held for advanced and special students who desire to spend the usual long summer vacation in study. Courses will be offered in botany, dairy industry, entomology, biology, nature study, floriculture, plant-breeding, plant pathology, pomology, poultry husbandry, rural engineering, soil technology, and vegetable gardening.

The Summer School for Teachers.—Beginning on July 6, and continuing through August 14, the regular summer school for teachers, superintendents, college students, and others will be held. The primary purpose of this six-weeks summer school is to advance education by helping those engaged in it. The courses to be offered include agriculture for elementary schools, agriculture for high schools, agricultural chemistry, animal husbandry, biology, botany, dairy industry, entomology, farm crops, floriculture, forestry, home economics, meteorology, nature study, plant-breeding, plant pathology, pomology, poultry husbandry, rural economy, rural education, soil technology, and vegetable gardening.

Throughout the week of July 13, the teachers of agriculture in the high schools of New York State will hold a special conference. Programs may be obtained from Professor L. S. Hawkins, State Education Department, Albany, or from the Secretary of the College of Agriculture.

School for Leadership in Country Life.—The fourth annual session of the training conference for rural social workers, known as the School for Leadership in Country Life, will be held at the College June 23 to July 3, inclusive. The courses of instruction include graded classes on the principles of rural sociology, the social function of rural institutions, rural social engineering, the rural mind, rural personal ideals, applied rural psychology, principles of leadership, study of the individual, social organizations, principles of rural economy, survey of rural economic conditions, cooperation, rural health and hygiene, rural recreation, psychology of the country girl, group organization for girls' work, the rural social survey, and extension teaching in agriculture. There will be a carefully selected and comprehensive country-life exhibit supplementing the classroom instruction.

This school is intended especially for rural ministers, secretaries of rural Young Men's and Young Women's Christian Associations, officers of men's brotherhoods and other religious organizations, Boy Scout masters, camp fire guardians, school superintendents, principals, and teachers, editors, librarians, officers of granges, institute lecturers, and other persons who occupy positions of leadership in the open country.

Full descriptive announcements of any of these schools may be obtained on application to A. R. Mann, Secretary, New York State College of Agriculture at Cornell University, Ithaca, New York.

EXTENSION SCHOOLS IN HOME ECONOMICS

Among its other interests, the Department of Home Economics at the New York State College of Agriculture has provided about thirty extension schools in home economics during the college year 1913-1914. The following is a list of places where schools have been held :

Ellington, Stamford, Lagrangeville, Horseheads, Dresserville, Sherwood, Hannibal, Watkins, Greigsville, Arcade, Union Springs, Almond, Worcester, Riverhead, East Bloomfield, Cuba, Mooers, Lowville, Ovid, Kinderhook, Burke, Lockport, Ithaca (Farmers' Week), Adams, Lake Placid, Liberty, Mexico (given up because of bad roads), Brook-Haven.

Miss Miriam Birdseye has been employed by the College to present the work in home economics continuously from December 1 to April 1. In addition, regular members of the staff have visited these schools when there was an unusual demand for lectures in any one week. The value of the schools is in the presentation of definite instruction for a continuous time, which is better than the occasional lecture.

CANNING CLUBS

The Department of Home Economics will cooperate with the Farm Bureau Agent, Mr. Forristall, of Cortland county, during the summer months in organizing and conducting canning clubs. These clubs will be not unlike those organized in other States under the United States Department of Agriculture. Their purpose is to care for the fruit and vegetables on the farm which might otherwise be wasted, to encourage the growth of more vegetables and fruits for canning purposes, and, what is still better, to encourage the organization of young persons for money-making on the farm in preference to money-making in the city. If the experiment proves a success in Cortland county it is hoped that in another year more clubs may be organized throughout the State. The Department of Home Economics will endeavor to standardize the products by giving instruction in principles of canning and preserving, and will furnish a label to be placed on the products as a mark of proficiency on the part of the young persons organized in clubs. Instruction will also be furnished by the College in cost-accounting, and aid will be given in the principles of salesmanship.

EXTENSION WORK IN ORNITHOLOGY

Through an arrangement with the Department of Zoology of the University, the College of Agriculture has secured the services of Dr. A. A. Allen, on part time, for the remainder of the college year. Doctor Allen, who is an authority on ornithology, is prepared to give lectures, on request, before granges, schools, community organizations, and the like, on the subject of our economic birds. These lectures are arranged on the same basis as is other extension work, the community desiring the lecture paying one half of the traveling expenses of the speaker.

Doctor Allen will be available also for work with the rural schools in giving instruction on birds to teachers and children. He will be glad to personally inspect communities where there have been serious depredations by birds, giving such advice as may be necessary in order to overcome the injury.

The College is especially fortunate in engaging Doctor Allen to give this instruction. For some time there has been a need for a competent teacher to take up this work, and it is hoped that many communities will avail themselves of the opportunity to hear Doctor Allen. All communications should be addressed to the Department of Extension Teaching, College of Agriculture, Ithaca, New York.

POTATO SURVEY

The Department of Farm Crops will continue during the coming summer the potato survey started in the summer of 1913. Last year more than one hundred records were taken on Long Island and in Steuben county. In the present summer a party of three persons will make a study of potato culture along the Ontario plain from Wayne to Orleans counties, also in the upper Hudson Valley in Washington and Clinton counties. As a result of these surveys, good and successful methods in the handling of different phases of potato culture are uncovered. The surveys should make available valuable sources of information.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 342—CLASSIFICATION OF GARDEN VARIETIES OF THE SWEET PEA

One of the most popular of annual flowers is the sweet pea; and it deserves its popularity because of its fragrance, range of color, profusion of bloom, and value as a cut flower for decorative purposes. When spring arrives the enthusiastic amateur gardener can rest assured that, if the soil is in good condition, he cannot plant sweet peas too early.

For four years the Department of Floriculture has been conducting cultural varietal tests with sweet peas in cooperation with the American Sweet Pea Society. The culture of sweet peas was described in Bulletin 320. The present bulletin, No. 342, contains carefully prepared descriptions of more than six hundred garden varieties that have been tested. The varieties comprise all the various types known, and they are classified so as to indicate the evolution and present progress in developing the modern varieties of sweet peas.

The lover of sweet peas will find the varieties grouped according to form and color, so that comparisons can be easily made. A list of the best varieties of each type and the best for different purposes is given.

BULLETIN 343—OATS FOR NEW YORK

This is a report of progress on the oat-breeding work that has been conducted at this experiment station for the past seven years. Different methods of improving oats by breeding have been compared, and the yields of some of the new strains and hybrids are here compared with those of commercial varieties. Considerable attention has been given to the relation between yield of grain and straw, shape of kernel and weight per bushel, and yield of straw and percentage of meat. Data obtained on these points indicate that farmers may often be misled in the selection of seed oats, on the basis of the external appearance of the kernels. The desirability of testing a given strain or variety in the same locality for several seasons, before deciding on its merits, is clearly shown. The fact is also brought out that the same strain or variety will not be good for all localities and conditions of New York State, but that different strains will have to be adapted to different conditions. The data presented in this bulletin should be of general interest to the farmers of New York State, where the oat crop ranks third in value, being surpassed only by hay and potatoes.

ORANGE HAWKWEED, OR PAINT BRUSH

At this season the weed popularly known as paint brush will force itself on the attention of farmers in various parts of the State. In many sections this pest is a newcomer and farmers will want to know about it. Paint brush presents a serious problem, and there seems to be no easy and satisfactory way of meeting it. A brief account of the plant and suggestions as to how it may be combated are given in Experiment Station Circular No. 9.

AVAILABLE STATION BULLETINS AND CIRCULARS

The following bulletins and circulars of the Experiment Station are available, and will be sent on request as long as the supply lasts. The list is correct to June 1. Residents of New York State may be placed on the mailing list for bulletins on one or more of the following subjects: apples, commercial floriculture, general farming, grapes, small tree and bush fruits, commercial vegetable culture, poultry, farm home. Address Mailing Room, College of Agriculture, Ithaca, New York.

Bulletins:

226 An apple orchard survey of Wayne county
229 An apple orchard survey of Orleans county
260 American varieties of beans
273 The effect of fertilizers applied to timothy on the corn crop following it
283 The control of insect pests and plant diseases
289 Lime-sulfur as a summer spray
295 An agricultural survey of Tompkins county
307 An apple orchard survey of Ontario county
313 The production of new and improved varieties of timothy
314 Cooperative tests of corn varieties
316 Frosts in New York
317 Further experiments on the economic value of root crops for New York
318 Constitutional vigor in poultry
320 Sweet pea studies—III. Culture of the sweet pea
321 Computing rations for farm animals
325 Cherry fruit-flies and how to control them
327 Methods of chick-feeding
328 Hop mildew
332 Oriental pears and their hybrids
333 Control of two elm-tree pests
334 A study of some factors influencing the yield and the moisture content of cheddar cheese
335 Scab disease of apples
336 Distribution of moisture and salt in butter
337 The Babcock test, with special reference to testing cream
339 Experiments concerning the top-dressing of timothy and alfalfa
340 Experiments in the dusting and spraying of apples
341 Crop yields and prices, and our future food supply
342 Sweet pea studies—IV. Classification of garden varieties of the sweet pea
343 Oats for New York
344 Agricultural surveys
345 A continued study of constitutional vigor in poultry

Circulars :

3 Some essentials in cheese-making
8 The elm leaf-beetle
9 Orange hawkweed, or paint brush
12 The chemical analysis of soil
14 Working plans of Cornell poultry-houses
15 Legume inoculation
16 The improved New York State gasoline-heated colony-house brooding system
17 The formation of cow-testing associations
18 Milking machines : their sterilization and their efficiency in producing clean milk
19 Late blight and rot of potatoes
20 The fire-blight disease and its control in nursery stock
21 The yellow-leaf disease of cherry and plum in nursery stock
22 Wholesale prices of apples and receipts of apples in New York City for twenty years

Extension Circulars :

1 A plan for a rural community center
2 Farm publications of the College of Agriculture
3 Means by which the State College of Agriculture is endeavoring to serve the farmers of New York
4 Community extension schools in agriculture

READING-COURSE LESSONS

THE CORNELL READING-COURSE FOR THE FARM

The Cornell Reading-Course for the Farm aims to assist those who desire to read reliable agricultural literature. The course is conducted by means of printed lessons dealing with practical agricultural problems. Certain lessons discuss fundamental principles which should be understood by those who wish to farm most successfully; others contain concrete suggestions or give detailed directions for the best practices. Below is given a list of available lessons showing the arrangement by series. The number of lessons available is increased by the publication of a lesson each month, which is added to the appropriate series. The new lessons are sent to readers as issued. Enrollment in the course is by series. Each lesson is accompanied by a discussion paper which contains questions on the important points in the lesson. If the discussion paper is returned, it is read carefully and a personal reply is made when information is desired. Another Reading-Course lesson in the same series is sent on the receipt of a discussion paper whether the questions are answered or not, as the return of a discussion paper indicates the reader's desire for further instruction. It is hoped that the discussion paper not only will assist the reader, but also will bring the College and the individual farmer closer together.

METHODS OF DETERMINING THE VALUE OF TIMBER IN THE FARM WOODLOT

In many parts of the State timber is sold by the acre, without any reference whatever to the amount of timber contained thereon. As a result the owner is likely to receive in payment a sum far below the true value of the lumber because he is ignorant of timber values and of how such values are determined. It is the purpose of this lesson, No. 62 of the Reading-Course for the Farm, to discuss ways and means of finding out, first, how much merchantable timber there is on a given piece of land; and, secondly, how much that timber is worth in the market under given conditions. The subject is dealt with by a discussion of the following topics :

1. Units of measurement in common use : the board foot; the cord; standards; the cubic foot; poles, posts, railroad ties, and other units.
2. Reckoning the contents of logs in board feet; log rules, their construction and application; factors affecting the board-foot contents of logs; relations between board measure and cubic measure; relations between cordwood and cubic measure.
3. Scaling.
4. Methods of estimating the merchantable saw timber in a woodlot; the tree-to-tree count; volume tables; area methods.
5. Methods of estimating the cordwood in a woodlot; cordwood tables.
6. How to determine the stumpage value of timber under different conditions.

The lesson, together with those whose descriptions follow, will be sent on application to the Reading-Course for the Farm, New York State College of Agriculture, Ithaca, New York.

THE RURAL SCHOOL AND THE COMMUNITY

The time has come when much attention is being given to the development of rural schools in the State of New York. All educational institutions and all persons in country districts should work together toward the betterment of the rural school plant and the school curriculum. Boys and girls in the country have the best opportunity for education that prepares for life. New York State is taking active measures to see that the young persons on the farm shall become efficient men and women.

This lesson, No. 64 of the Reading-Course for the Farm, has been prepared for the purpose of presenting the present outlook for improving rural schools, as viewed by persons who are actively engaged in working out educational ideals in country districts. It is essential that farmers should understand the work that is being done in order that they may aid in any way possible. The patrons of the rural schools must help to make them more efficient. Thousands of farmers in New York State are giving their earnest effort toward this end.

MEADOWS IN NEW YORK

About one third of the cultivated land in New York, or five million acres, is in hay and forage. Hay is the most valuable crop in the State, representing about one half the value of all farm crops for the State.

The lesson here considered, No. 66 of the Reading-Course for the Farm, discusses the best hay plants used in New York State and how they may be selected for different types of land. The result of experimental work covering many years, in regard to the use of fertilizers, is also summarized. Fertilizing meadows is probably the most important farm-crop problem in the State, but it must be practiced with some care and discrimination if profitable results are to be gained. The application of lime to meadows is considered, especially in connection with growing clover. The present status of these questions is set forth in the lesson.

AVAILABLE READING-COURSE LESSONS FOR THE FARM, ARRANGED BY SERIES

Residents of New York State may register for one or more of the series mentioned below by addressing The Cornell Reading-Course for the Farm, College of Agriculture, Ithaca, New York:

SERIES		LESSONS
The soil	42	Tilth and tillage of the soil
	50	Nature, effects, and maintenance of humus in the soil
Poultry	6	Incubation—Part II
	10	Feeding young chickens
Rural engineering	8	Knots, hitches, and splices
Farm forestry	12	The improvement of the woodlot
	28	Recent New York State Laws giving relief from taxation on lands used for forestry purposes
	40	County, town, and village forests
	62	Methods of determining the value of timber in the farm woodlot
The horse	14	Horse-breeding to increase the farm income
	46	Feeding and care of the horse
	56	Practical horse-breeding

Dairying	16	Practical dairy problems
	32	Composition of milk and some of its products
	54	The dairy herd
	60	Farm butter-making
Fruit-growing	18	The renewal of the neglected orchard
	22	The culture of the currant and the gooseberry
	36	Culture of red and black raspberries and of purple-cane varieties
	48	Culture of the cherry
	52	Culture of the blackberry
Farm crops	20	Alfalfa for New York
	24	The rotation of farm crops
	66	Meadows in New York
Stock-feeding	26	Computing rations for farm animals
Vegetable gardening	30	Hotbed construction and management
	34	Home-garden planning
	58	Planting the home vegetable garden
Plant-breeding	41	Improving plants by selection or breeding
	38	Principles and methods of plant-breeding
	44	Methods of breeding oats
Country life	64	The rural school and the community

The above list is correct to June 1, 1914. The demand may at any time exhaust the supply of particular numbers. Requests will be filled as long as the supply lasts.

SEWAGE DISPOSAL FOR COUNTRY HOMES

The purpose of this lesson, No. 59 of the Reading-Course for the Farm Home, is to suggest to persons in country homes better methods of disposing of household wastes than by means of the slop pail and the outdoor privy. These new methods of sewage disposal are recommended to the farmer because it is hoped that they offer the following advantages: (1) they should make conditions much easier for every one in the home, especially for the housewife; (2) they are adapted to apparatus that is kept in order by about one tenth as much work as the old ways require, and this small amount of work will be not nearly so disagreeable as that now generally necessary; (3) they are more sanitary than the old methods, preventing the possible spread of disease by flies or by the contamination of drinking water; (4) they are easy to understand, are practicable, and are reasonable in price; (5) the different plans suggested cover every type of conditions usually met with in average country homes.

The author believes that a sewage-disposal system suitable to be recommended to farmers should possess the following characteristics: (1) it should be sufficiently sanitary; (2) it should be convenient for use and in its maintenance; (3) its construction should be simple and cheap.

Definite rules are given for the design of a successful septic tank, for locating purifying tile, for laying drainpipe from the house to the septic tank, for laying vitrified sewer pipes, and for mixing and laying concrete.

The lesson should prove an efficient handbook for the farmer who wishes to install a sanitary sewage system that will do good work and at the same time be simple enough for home construction.

FARM BUREAU CIRCULARS

CIRCULAR NO. 1—FARM BUREAUS: WHAT THEY ARE AND HOW THEY ARE ORGANIZED AND FINANCED IN NEW YORK STATE

This circular, written by Lloyd S. Tenny, the first state leader of farm-bureau work in New York State, describes the farm-bureau movement in general, gives the method of organization and financing of local bureaus, and presents a brief statement of the function and work of the county farm bureau agent. Many details as to the location of the office, methods of transportation about the county, free use of the mails, et cetera, are given. A copy of a model constitution and by-laws for the farm bureau association is appended to the circular.

CIRCULAR NO. 2—BROOME COUNTY: AN ACCOUNT OF ITS AGRICULTURE AND OF ITS FARM BUREAU

This is the first of a series of circulars dealing with the agriculture of the different counties in the State in which farm bureaus are located, together with an account of the bureau, its organization, and its work. These circulars are prepared under the direction of the Central Office located in the College of Agriculture.

At the present time there is no complete and specific information concerning the history and present status of agriculture in the various counties of New York State, written in popular language and available to the general public. In the belief that such information is wanted both by the residents of the county itself and by interested persons outside the county, and that the publication of local agricultural facts and conditions in each county will do much to arouse local pride, to call attention to local problems, and to make known the agricultural advantages and opportunities in a county, this series of circulars has been projected.

It is expected that each of these circulars will present a fairly complete statement of the agricultural conditions and possibilities of a county. Besides a brief history of agriculture in the county, the circular will include a description of the local climate, soil, and topography, a statement of population, general business conditions, market facilities, and types of farming practiced, and tables showing total production and unit yields. It will also point out desirable systems of farm management, suggest changes that should be made, and call attention to many other important matters on which success in farming depends locally.

A second part of each circular will consist of an account of the local farm bureau, its organization, and its ability to help in developing the agriculture of the county. One of the most important functions of a farm bureau association is to study local problems with the purpose of finding out and presenting solutions for them. Such an association should be interested also in presenting to the general public, in an attractive manner, the opportunities for farming in the county, and in stimulating local initiative. To increase the net incomes of farmers and to help in obtaining better schools, churches, and roads, is to promote the welfare of every citizen in the county. Such cooperative effort, properly directed, should also result in a material increase in land values. All these things the State College of Agriculture and the other organizations cooperating in the farm-bureau work in New York State desire to promote. This publication, it is thought, will greatly aid the proposed work.

CIRCULAR NO. 3—THE FARM-BUREAU MOVEMENT

This circular is an address delivered by Dr. L. H. Bailey, former Director of the New York State College of Agriculture, before the Erie County Farm Bureau Association at Buffalo, New York, on March 17, 1914. This is one of the most important pieces of farm bureau literature yet issued, as it deals with the fundamental principles underlying the farm-bureau movement. Doctor Bailey discusses the reasons for the farm bureau, the work or effort of the farm bureau agent, and the administration of the work. A limited supply of copies of this circular is available.

A STATE PUBLICATION

Circular 93.—The Farm Bureau Movement in New York State.— This is not published by the College, but by the State Department of Agriculture at Albany. However, a limited supply of copies is available at the College as well as at the Department.

The bulletin is a reprint of four addresses on farm-bureau work made before the State Agricultural Society at its seventy-fourth annual meeting at Albany, January 20 and 21. An address by the State Director outlines briefly the organization, development, means of financial support, purposes, and policies of the farm-bureau movement in the whole State. The other three addresses, made by the county agents of Jefferson, Oneida, and Chemung counties, who have been at work in their counties for fourteen to twenty-two months, give concrete examples of how the work is conducted and of results obtained. The circular sets forth, in concise, authoritative statements, the organization and policies of the farm-bureau movement in New York State, and gives concrete examples of methods and kinds of work that have been done and that are now being undertaken.

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W. A. STOCKING, Jr., Acting Director A. R. MANN, Editor

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THE DEPARTMENT OF DAIRY INDUSTRY

Milk is one of the best and cheapest of foods, and for infants and invalids it is a necessity. Probably no other substance lends itself so readily to the manufacture of as wide a variation of wholesome food products as does milk. According to the census of 1910, dairy industry was one of the chief branches of agriculture in New York State from the standpoint of the value of the products sold. For these reasons the teaching of dairy industry is an important part of the instruction given by the New York State College of Agriculture. The Department of Dairy Industry at the College is concerned with that branch of dairying which relates to the care and handling of milk and the manufacture of dairy products.

The building occupied by the department consists of two connected parts. The main section, which is three stories high exclusive of the basement, and fifty by one hundred feet in area, contains classrooms and lecture rooms, bacteriology and testing laboratories, offices, a reading room, a part of the dairy mechanics laboratory, and locker rooms. The other section of the building, sixty by one hundred feet in area and with a basement under a part of it, is devoted to the manufacturing laboratories. The separation of the manufacturing laboratories from the lecture rooms, offices, and other laboratories is an important factor; for, while the manufacturing rooms are in direct connection with the main part of the building, the disturbance due to the noise necessary in the manufacture of dairy products is eliminated.

The lines of activity of the department are three in number—teaching, experimentation and research, and extension.

TEACHING

The testimony of all who are engaged in practical dairy work is that dairying is an exact science. It is quite necessary, therefore, that those who intend to specialize in this work should have as good a fundamental scientific training as possible. The following branches of dairy industry are taught at the College :

Milk composition and tests.—This is a necessary fundamental study for those who intend to specialize in dairy industry. The work offered under this head is designed also for those who wish merely to obtain a general knowledge of milk and its products.

Butter-making.—This work is divided into two classes—that which is done in the factories, and that which is done on the farms. Necessary apparatus is provided for those who wish to get this instruction in either of these classes.

Cheese-making.—The work in cheese-making consists of instruction in the manufacture of ordinary American cheddar cheese and in the manufacture of the so-called soft cheeses. The instruction in the manufacture of American cheddar cheese is designed principally for those who wish to handle milk on a comparatively large scale; the instruction in the manufacture of the soft cheeses can be adapted to those who wish to manufacture dairy products on farms as well as on a large scale.

Bacteriology.—A thorough knowledge of this subject is necessary for a clear understanding of the art of dairy industry. There is scarcely any branch of dairying that does not depend primarily on the action and control of bacterial life.

Market milk, and milk inspection.—The handling of market milk is rapidly becoming one of the chief branches of dairying in New York State. For several years the Department of Dairy Industry has performed some of the inspection work for the city of Ithaca, and therefore it has an excellent opportunity to bring students into close touch with actual inspection work.

Ice-cream making.—More and more, ice cream is being regarded as an important article of food instead of a luxury. Instruction is offered in the manufacture of ice cream both on a large and on a small scale.

Advanced work.—Opportunity is offered to advanced students for performing graduate and research work. Some of the equipment found in the different laboratories is provided especially for the use of graduate and advanced students.

The Winter Course in Dairy Industry.—No inconsiderable amount of teaching is done by the Department of Dairy Industry during the winter course. The Winter Course in Dairy Industry, like all the winter courses, is vocational, and therefore no entrance requirements are necessary. A good fundamental training, however, is of the greatest aid to students who take this course.

Inasmuch as the short course is vocational, all the laboratory practice possible in the manufacture and handling of dairy products is given. The fact should be emphasized, however, that as much of the science of dairy industry as is compatible with their previous training is taught to the winter-course students. Scientific training is the real purpose for which the student comes to college. Practice may be obtained in any dairy plant.

In addition to the Winter Course in Dairy Industry, elective courses are offered to students who take the Winter Course in Agriculture. The number of students who have elected these courses, and the interest shown by the students in their work, are a good indication that dairy industry is an important branch of agriculture in New York State.

EXPERIMENTATION AND RESEARCH

The problems that confront the dairyman are numerous. It is impossible for him to solve many of these for himself, and it is safe to say that the working-out of nearly all requires scientifically trained men and the use of laboratories with the best scientific equipment. The Department of Dairy Industry is endeavoring to fulfill the obligation that it owes to the dairymen of the State, by working out these problems. The experimental and research work is handicapped by the vast amount of teaching that is required of the department; however, many vital problems confronting dairymen have been investigated, with beneficial results to the business of dairying.

Experimental work is performed, as far as possible, in all branches of dairy industry. But as a specific instance of the value of this kind of work, the study of the metallic flavor of butter may be mentioned. The work on this subject is not yet completed and therefore no publication describing it has yet been issued. The results already obtained, however, have been of great value to some butter-makers in helping them to improve the quality of their butter by doing away with the metallic flavor.

EXTENSION

As with all the departments in the College of Agriculture, the extension work done by the Department of Dairy Industry is one of its important activities. The department has an extension instructor on its staff. Every year approximately one hundred students take the Winter Course in Dairy Industry and afterward obtain positions in all branches of dairying in New York State. The extension instructor teaches in the winter course. He is thus able to become personally acquainted with a large number of the men who are actually to be engaged in dairy work, and is therefore better able to help them with the difficulties that arise in their later work.

The work of the extension instructor, however, is not confined to former students and others who operate butter and cheese factories. Every year a large number of requests for aid and instruction are received by the department from dairy farmers throughout the State. The instruction given relates to the care and handling of milk, to the arrangement of dairy buildings and their equipment, to the best methods of disposal of dairy products, and to the eradication of special difficulties experienced by individual dairymen.

The department has organized and maintains a monthly judging of dairy products. Any dairyman may send to the department, at times specified, samples of his dairy products and have them scored for quality and composition. This is an opportunity that should be taken advantage of by a large number of dairymen, as those who do the judging are ready to give advice in remedying any defects that may appear in the product. If the person sending the product furnishes one of sufficiently high quality and complies with certain requirements, he receives a diploma of merit from the department.

The department also furnishes speakers, on request, for granges, dairymen's meetings, and farmers' meetings; and exhibits are held at fairs and dairy meetings, including the State Fair and the New York State Dairymen's Convention.

OPPORTUNITIES IN DAIRY INDUSTRY

As the fact that the practice of dairy industry is governed by scientific principles has become more and more fully recognized, the demand for scientifically trained men has greatly increased. In the past few years there has been an ever-increasing demand for teachers and investigators in dairy industry, and probably this demand will continue for several years at least. Large dairy companies are placing the active management of their business in the hands of scientifically trained men, and they are doing this because they recognize the fact that such men will produce better results than men who have not had the advantages of a thorough scientific training.

Every year the department has been unable to fill the requests that have been received for competent men to take charge of butter and cheese factories, market milk plants, and dairy farms. The salaries paid to men who go into dairy work after having finished their college training ranks in proportion to the salaries paid to trained men in other branches of agriculture. It is needless to say, however, that these salaries depend largely on the ability of the men themselves.

METHODS OF WORK

The department has tried, as far as possible, to reach an ideal in teaching by combining theory with practice. In order to provide practice large quantities of milk are required, and because of this the department is obliged to conduct a considerable commercial business. This feature has its drawbacks, since it necessitates a large amount of work by the members of the departmental staff. It has its advantages, however, in that it keeps the members of the staff in close touch with actual commercial conditions, which makes it possible for them to give better instruction than would otherwise be the case.

The department leases and controls six skimming stations. In addition to the supply from these stations, some of the farmers in the vicinity of Ithaca deliver milk directly to the Dairy Building of the College of Agriculture; and some cream is bought in order to have a sufficient supply in the winter months, when the supply of milk is usually low. It should be borne in mind, however, that commercial work is done only for the sake of making it possible to do better work in teaching and research, and not for financial gain.

The territory surrounding the six skimming stations operated by the department is fairly large. The amount of product received, however, is not so large as it should be. This is due in part to low production per cow. In order to increase this production per cow, the department has been conducting a cow-testing association among its patrons, and good results are beginning to be shown from this organization. During the past fiscal year a lower number of cows was kept by the farmers than during any year since the department has controlled the skimming stations. The amount of product received, however, was greater. During the fiscal year 1910-1911 the department maintained only four skimming stations. Comparing the receipts of fat from these four stations during the year 1910-1911 with the fiscal year just passed, an increase of 21.9 pounds of fat per cow has been found. While this increase is not large, it shows that the milk patrons of the department are taking an interest in their work and are applying improved methods in their dairying.

ADDITIONAL LINES OF WORK

While the activities of the department are broad, there are many branches of dairy manufacture on which the department has not yet touched. Chief among these is the manufacture of condensed milk and the so-called fancy cheeses. Lack of funds and of equipment has prevented this important work, but it is hoped that in the near future funds and equipment will be available to allow the department to take up some of the other branches of dairy manufacture which are becoming important phases of dairy industry in New York State.

FACULTY APPOINTMENTS

DR. BEVERLY T. GALLOWAY

On August 1 the new Director of the State College of Agriculture, Dr. Beverly T. Galloway, will take up his work at Ithaca. Dr. Galloway was born in Millersburg, Missouri, on October 16, 1863. In his early childhood his parents removed to Columbia, Missouri, where he received his education, being graduated from the University of Missouri in 1884 with the degree of B.Agr.Sc. In 1902 he received the degree of LL.D.

During his college course Dr. Galloway was engaged in horticultural work at the university, giving his attention principally to floriculture. In the year following his graduation he was given the work of collecting agricultural, botanical, and other material for the New Orleans Exposition, and he spent that winter, 1894-1895, at the exposition. At its close he returned to Columbia, where he remained until 1887, devoting himself to the study of plant pathology—a science then in its infancy.

In 1887 the United States Department of Agriculture was given a small appropriation for the study of plant diseases, and Dr. Galloway was appointed Assistant Pathologist in the Section of Vegetable Pathology. On the resignation of the chief of that section one year later, Dr. Galloway was appointed his successor, and at about that time the name of the office was changed to Division of Vegetable Pathology. A few years later, in 1895, the scope of the work of the division was broadened to include plant physiology and the name was changed to Division of Vegetable Physiology and Pathology. Dr. Galloway continued his work as chief of the division until 1900. During that time the various state agricultural experiment stations were organized, and there was much cooperation between the United States Division at Washington and the state experiment stations, farmers, fruit and vegetable growers, and others.

By 1900 the work of the Department of Agriculture had developed to such an extent that an entire reorganization became necessary. In this reorganization four large bureaus were created, one of which was the Bureau of Plant Industry. Dr. Galloway was appointed the first Chief of the Bureau of Plant Industry, under which was included all the plant work of the Department. He remained in charge of the Bureau until 1913, when he was appointed Assistant Secretary of Agriculture. He leaves that office to come to Cornell.

Dr. Galloway is a Fellow of the American Association for the Advancement of Science. He is the author of a number of works on botany, horticulture, plant diseases and their treatment, and allied subjects.

DEPARTMENT OF RURAL EDUCATION

The New York State College of Agriculture has for some time been in search of a man to take the position of head of the Department of Rural Education. The search has finally been successful, and Professor George A. Works entered upon his duties in that capacity on July 1.

To discharge these duties efficiently, Professor Works has been admirably fitted by early life, education, and experience. He was born on a dairy farm at Augusta, Wisconsin, in 1877, and there he lived continuously until 1896. From that time until 1902 he spent his summers there. He completed his elementary education in a country school and later was graduated from the high school at Augusta. He then attended the State Normal School, situated at River Falls, and completed the course in 1898. For four years he was principal of the grades and high school in a small city. Afterward he studied in the University of Wisconsin, from which he was graduated in 1904 with the degree of Bachelor of Philosophy in Education. He then spent seven years in the public schools of Menominee, Wisconsin, during which time he served for one year as instructor in botany in the high school, three years as principal of high schools, and three years as superintendent of schools. After these years of teaching experience he entered the College of Agriculture at the University of Wisconsin, where in 1912 he received the degree of Master of Science in Agriculture. He continued in the college, instructing in the Department of Agricultural Education and devoting one third of his time to study until the fall of 1913, when he went to the University of Minnesota as Assistant Professor of Agricultural Education. It is from Minnesota that he comes to the New York State College of Agriculture.

The extension work among rural schools is already well advanced through the Cornell Rural School Leaflet. Other phases of extension in rural education are yet to be developed. The work that will demand first attention from Professor Works, however, is the organization of courses in rural education for university students, a need which has long been felt.

DEPARTMENT OF FORESTRY

Ralph Sheldon Hosmer has been appointed Professor of Forestry in the New York State College of Agriculture at Cornell University to take the place of Professor Walter Mulford, who goes to the University of California to occupy a similar position.

Professor Hosmer was born in 1874 at Deerfield, Massachusetts. He received his education at the Boston Latin School and at Harvard, where he attended the Bussey Institution and the Lawrence Scientific School from 1891 to 1895. From Harvard he received the degree of Bachelor of Agricultural Science.

In 1896 he took a position in the Bureau of Soils, United States Department of Agriculture, and later entered the Bureau of Forestry, being made Chief of the Section of Forest Replacement. While on furlough he took a course at the Yale Forest School and also gave instruction in forest mensuration at Yale. He received the degree of Master of Forestry from Yale in 1902. His services were then continued with the Bureau of Forestry until January, 1904, when he was appointed Superintendent of Forestry in the Territory of Hawaii under the Board of Commissioners of Agriculture and Forestry.

He organized the Division of Forestry in Hawaii, established a forest reserve system, systematized the forest fire service there, established and developed a policy of advice and assistance to private landowners, particularly in forest planting, and has carried on important experimental work in connection with the introduction and trial in Hawaii of trees of economic importance new to the islands.

His interests and undertakings in Hawaii have been very broad, including a campaign of education in forestry and in the conservation of other natural resources. Much valuable assistance has been rendered by him in other branches of governmental work in Hawaii, and he secured the establishment of the Volcanological Observatory at Kilauea and the extension to Hawaii of several branches of governmental scientific work undertaken by various United States bureaus and departments.

He has been closely associated with educational work while in Hawaii, and has held the position of Vice-President of the Board of Regents of the College of Hawaii since 1907.

Professor Hosmer's breadth of executive experience and ability, and the fact that he has also had special experience in New York State during the time in which he worked for the United States Forest Service, will be of great value in his future work. He is a member of the Society of American Foresters, as well as several scientific societies, several state forestry associations, the Amercian Forestry Association, and the National Conservation Association. His work in Hawaii will be concluded in the latter part of the summer, and it is expected that he will take up his duties at Cornell in September.

GENERAL ANNOUNCEMENTS

EXHIBITS FOR TOWN AND COUNTY FAIRS

(Department of Extension Teaching)

For several years past it has been the policy of the College of Agriculture to send educational exhibits to town and county fairs whenever the demand has arisen. For the coming season the same policy will be carried out, in so far as the demands can be met and the necessary arrangements can be made. These educational exhibits are placed only on request, and in case the local organization concerned will agree to pay one half of the transportation charges on the exhibit material to and from the fair and one half of the traveling and hotel expenses of the one or two specialists required to take charge of the exhibit. These specialists accompany the exhibits in order to explain them and to take up with visitors any questions pertaining to them. As the number of fairs to which the College can send exhibits will be limited, the request for exhibits should be made as early as possible.

Some of the exhibits that will be available are : animal husbandry exhibit, including samples of feeds, charts and photographs relating to milk production, cow records, and the like; agricultural chemistry exhibit, showing the general chemistry of fertilizers, amendments, forms of lime, vinegar work, and insecticides; farm crop exhibit, showing the effect of top-dressing meadows, of good pasture grasses, and of combinations of good and bad seed, and dealing with some of the more important problems related to the cultivation of oats and other farm crops of the State; plant pathology exhibit, showing the more common plant diseases and methods of control; pomology exhibit, including seedling trees, demonstrations, examples of budding and grafting with tools for performing the operation, good and poor types of nursery trees with specimens, and planting plans; poultry husbandry exhibit, demonstrating testing, candling, and grading eggs, and calculating commercial value; soils exhibit, including charts and materials dealing with drainage, lime, and tillage, maps of soil surveys and charts showing the results of these surveys, essential points in a productive soil, fertilizers, and maintenance of humus; vegetable gardening exhibit, showing the essential features in connection with the preparation of the seed bed and the raising of vegetables; entomology exhibit, showing some of the commoner insect pests by photographs, charts, and mounted specimens, together with illustrated matter describing methods of control.

The Department of Dairy Industry is prepared to send exhibits to a limited number of fairs in the State during the latter part of August and during September. The exhibits consist of demonstrations and material representing methods of handling milk and dairy products in the best-approved way. The various tests of products can be demonstrated. Persons interested may bring samples from their own herds or factories and have tests for butter-fat, moisture, salt, solids, and the like made at the fair, free of charge. A representative of the department will be in charge of the exhibit and will be glad to answer inquiries that dairymen may wish to make in connection with their work.

All communications should be addressed to the Department of Extension Teaching, College of Agriculture, Ithaca, New York.

BLIGHT OF APPLES, PEARS, AND QUINCES

(Department of Plant Pathology)

Many complaints have been received from various parts of the State concerning a blighting of twigs, on apple trees in particular and on pears and quinces to some extent. Correspondents wish to know what can be done now in order to prevent further destruction.

The disease in question is the ordinary fire blight, which has been with us for more than a hundred years but which appears to be more prevalent and destructive in some years than in others. The disease may also appear as a blossom blight, a fruit blight or rot, and a canker on pears and young apple trees. If one examines the affected fruit he will observe small drops of a whitish, sticky fluid adhering to it. These may often be found on blighting twigs and on cankers.

The disease is caused by a bacterial parasite that passes the winter in the margins of cankers or in affected twigs. In the spring of the year, after growth in the trees has begun and particularly if there have been abundant showers and warm weather, these bacteria ooze out with the sap through the bark as milky drops like those observed on the fruit. Insects of various kinds visit these sweet drops and their bodies become smeared with the bacteria. Some of these insects later attack the young shoots of apple and pear and introduce the bacteria into the injuries they make. The bacteria grow rapidly in these tender shoots and soon cause the blighting that is so noticeable. Bees also, in their search for sweets, may carry the bacteria from the oozing drops to the nectar in the blossoms. The nectar makes excellent food for the bacteria and they increase rapidly in it. A single bee may inoculate many blossoms in this way, and other bees visiting these inoculated blossoms may carry the bacteria to all the other blossoms that they visit. In this way thousands of blossoms may become inoculated easily and quickly. The bacteria readily pass through the nectar into the tender tissues of the blossoms, and soon afterward blossom blight is noticed in our trees. While trees are making rapid growth the bacteria are able to proceed down the twigs into the limbs, and even into the trunks, causing bad cankers to appear. In older apple trees they seldom extend beyond the current year's growth, but even this may cause the loss of a crop. In some varieties of pears the bacteria are so active that they may destroy an entire tree.

In dry seasons the disease is not so prevalent as at other times, because the affected parts do not ooze so abundantly and when they do the drops quickly glaze over and dry down to hard amber or black spots that are not attractive to insects and would not adhere to them.

There is no way of absolutely controlling the disease in this State because there are so many sources of infection from which the organism may be carried. The number of infections can ordinarily be greatly reduced by removing, during the dormant season, all cankers and blighted twigs from the trees. Great care must be exercised that all affected tissue is removed and the wound disinfected with corrosive sublimate solution. During the growing season the fresh infections showing as blighted blossoms and twigs should be removed wherever possible. It is important that they be quickly removed from trees likely to become badly injured from canker. The removal of blighted twigs from larger apple trees is of doubtful value, and the cost of such an operation practically prohibits it in a year such as this, when the blight is so abundant.

The bacteria cease their activity when the tissues of the trees harden, and one may take advantage of this by endeavoring to stop growth in his trees. This is usually accomplished by stopping cultivation and seeding the orchard with a cover crop. This crop takes considerable water from the soil that the tree would otherwise get, and this condition checks the growth and hardens the wood of the tree. When abundant rains continue throughout the summer the growth is not so greatly checked.

In order to keep fire blight under control, however, the removal of blighted parts during the dormant season and of fresh infections after frequent inspections during the growing season is very necessary.

READING-COURSE LESSONS

SYLLABUS OF LESSONS FOR EXTENSION SCHOOLS IN HOME ECONOMICS

For several years the Department of Extension Teaching of the New York State College of Agriculture has held extension schools in which farm subjects have been treated by representatives of various departments of the College. Parallel with these lectures, lessons in home-making have been given by members of the Department of Home Economics.

The object of this publication, No. 57 of the Reading-Course for the Farm Home, is to state the conditions under which an extension school in home economics can be organized and to furnish a course of study in the preparation of food for a week's lessons. Each lesson covers a half-day session, with lecture and demonstration as follows:

The needs of the body, and how these are met by our food. Water, sugars, and starches in the diet. Cereals. Demonstration, rice cookery.

Fats and fatty foods in the diet. Milk as a food. Demonstration, some things that one cup of milk will make.

Nitrogen in the diet. The cooking of meats. Demonstration, pork chops. How to make and use a simple fireless cooker.

Why we need to supply mineral matter in the diet. Demonstration, appetizing ways of preparing dried fruits; salads.

Planning meals. Demonstration, desserts.

Thirty-three schools in home economics have been held since December 1, 1913, in different parts of the State.

THE YOUNG WOMAN ON THE FARM

Earlier lessons of the Reading-Course for the Farm Home have not pointedly distinguished the young woman and her interests. This subject is taken up in Lesson No. 63. The farm daughter's economic opportunity is considered and compared to that of the farm boy, and the question is asked whether she shall go to the city in order to earn the income that she desires or whether she shall find industries in rural communities by which she may earn her living.

The need for recreation is shown, and the suggestion is made that games and play be encouraged so that there may be a proper balance between play and work. It is further urged that good equipment be added to the house in order to make the strenuous work of housekeeping on the farm as light and as interesting as possible; and that the farm daughter be furnished equal educational advantages with the boy, so that she may make housekeeping as scientific and interesting as men have made farming.

By an accompanying questionnaire opportunity is given for obtaining at first hand the impressions that farm girls have of country life, its drawbacks and its advantages. If country girls respond to these questions, it is hoped that in subsequent lessons the way will be pointed to rural industries that will help to put the farm girl in sympathy with her environment and make her a power in her farm home and in her community.

ANNOUNCER
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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

THE ARMY WORM

The army worm has appeared in large numbers in various sections of the State and is doing considerable damage. It is threatening fields of wheat, oats, corn, timothy, blue grass, and other grasses. The worms have hatched from eggs laid by moths closely allied to the ordinary cutworm moths. The moth is brown in color, with a white spot in the center of the forewing. The eggs are usually laid on various grasses in low-lying meadows, particularly in pasture lands that have a good growth of succulent grasses. The worms feed on these grasses, and, when their food supply is exhausted, march to near-by fields of corn, oats, wheat, and the like.

The army worm is a smooth, greenish black, striped caterpillar, about an inch and a half long when mature. There are three stripes on each side of the caterpillar—the lower one greenish yellow, the second almost black, and the third a little darker in color than the first. Some of the worms are much lighter in color than others. Normally they feed at night and remain hidden in the grass or under various coverings during the day. When their food supply becomes reduced they feed both by night and by day, and set off in search of new pastures.

HOW TO CONTROL ARMY WORMS

The best control method is prevention. All low-lying meadows should be examined, and if the worms are found in large numbers immediate action should be taken to protect near-by crops of corn, wheat, oats, barley, rye, or other grasses. Around such fields plow a deep furrow, having the vertical edge next the field to be protected. The vertical edge of the furrow should be at least six inches deep; it should be smoothed by means of a spade, care being taken to break off all the overhanging grass roots. Along such furrows post holes should be dug at intervals of ten to fifteen feet. The worms, in attempting to crawl out of the furrows, will fall into the holes and may be killed by crushing or by pouring kerosene oil on them.

Where worms have already invaded a field the following mixture may be used: paris green, 1 pound; bran, 50 pounds; juice of six oranges. Mix the bran and the paris green, adding the juice of the oranges and enough water sweetened with molasses to make the bran break easily through the fingers. Do not have the mixture sloppy. Spread this mixture late in the afternoon on the places where the worms are feeding.

On lawns the worms may be destroyed by the poisoned bait described above, or by spraying with lead arsenate, 6 pounds to 100 gallons of water. If powdered lead arsenate is more easily obtained, mix 1 pound with 8 pounds of flour, and dust the mixture on the grass. As these sprays and mixtures are all deadly poisons, care should be exercised to keep them away from children and domestic animals.

DEPARTMENT OF POMOLOGY

In the field of fruit-growing the value of accurate research and thorough training in teaching cannot be overestimated. Not only are farmers turning their attention to fruit as one of the most profitable farm products, but also many persons whose interests are primarily urban are attracted to the industry. In a comparatively short time fruit has risen to a prominent place among farm products. This progress calls for men of practical experience and good training in fruit-growing.

The Department of Pomology at the State College of Agriculture is organized to meet the problems of the fruit industry in New York. Since the establishment of the department in 1910, the work has divided itself naturally into three divisions: research, extension, and teaching.

EXPERIMENTATION AND RESEARCH

It is doubtful whether in any kind of farming the problems are more complex, or the need for careful experimental work greater, than in fruit-growing. It is extremely difficult, however, to get trustworthy information from experiments because of the wide variation in the production of different trees, this making the experimental error very great. It is impossible for any experiment station to conduct experiments that will answer all the questions of the fruit-grower; in fact, there are very few problems concerning the culture of fruit that can be solved except by experiments continued through a long period.

One of the most important lines of experimentation for the pomologist is fundamental study to learn more about the nature of the fruit plant itself. Results of such work should enable the experimenter to more readily detect errors in experiments along practical lines, and therefore to outline the practical experiments in such a way that they will give more conclusive results. The Department of Pomology is attempting a considerable amount of such research, which does not need to be mentioned here.

Among the more important problems relating to the lines of experimenting from which it is hoped to secure directly practical information, are:

1. A study of the response of various small fruits, including strawberries, to commercial and other fertilizers. Experiments on this problem are being conducted in the pomology orchard, and also at

Marlboro, in the Hudson River section. It is hoped to extend the experiment so as to include one or two additional small fruit sections during the next season.

2. Experiments concerning the best method of pruning trees. A large part of the pomology orchard is under pruning experiments. It is hoped to make a very exhaustive study of the question of pruning, which would include the effects of summer pruning and of pruning at other seasons of the year—such as when the growth is starting in the spring, and when the wood is frozen; the method of pruning old trees in renovating an old orchard, expecially when the trees have been set too close; and the best method of handling water sprouts in an old orchard where the head has become too high, as well as the effect of the various methods of shaping on the fruitfulness of the trees. Such experiments cannot give conclusive results until they have been carried on for a rather long term of years.

3. Experiments with the use of fruit-graders. Probably two of the more important makes of fruit-graders will be used in grading the apples from the pomology orchard this year. It is hoped that in later years a large number of graders will be used. The fruit will be examined for any immediate ill effect that graders may have, and will also be examined after the storage period for any ill effects that may become evident during storage.

The department is also making a test of the different varieties of pecans and English walnuts, in order to determine which varieties, if any, may be fairly hardy under New York conditions.

EXTENSION

The department is conducting the following lines of extension work: lectures before granges, farmers' clubs, and other rural organizations on topics of local interest; demonstrations of pruning and spraying each year in localities where there is sufficient demand for such work; cooperative experiments with fruit-growers in regard to the use of fertilizers; inspections of fruit farms, with suggestions and advice when [illegible]led; the appointing of judges for grange and county fruit exhibits; the sending of exhibits to county fairs and to the State Fair; the preparation of Reading-Course lessons as a part of the Cornell Reading-Course for the Farm (six lessons on fruit-growing are now available); correspondence with numerous persons concerning those problems that can be solved without personal inspection.

The department desires to do this work as far as possible through the local organizations, especially the Farm Bureau, and through the Department of Extension Teaching at the College.

TEACHING

Courses are offered for the regular student, the special student, the winter-course student, and the summer-course student.

Regular and special work. The courses are arranged to provide a training for those who desire to specialize in fruit-growing; those who desire to engage in general farming, in which fruit is a secondary industry; and those who desire to teach or to conduct research. Certain courses emphasize the practical, others the scientific, point of view. The adoption of the third, or summer, term, in which regular courses are offered, makes it possible for the department to teach all topics in season.

Winter course. The winter course emphasizes the best practices of commercial and amateur fruit-growers the country over. The course is designated primarily for farm boys and girls who can spend only a short time at college, and who wish to acquaint themselves with the latest information on the various topics and also to learn how and where to obtain information. The work is vocational and therefore no entrance requirements are necessary, although a good fundamental training is of the greatest help to students who take this work.

Summer course. The work of the summer session is designed to meet the needs of those who are interested in the subject and who cannot attend during the regular college year. Such persons are interested from the point of view of the practical grower or the teacher.

FRUIT EXHIBITS

The time is fast approaching for the holding of fruit exhibitions by granges and county associations. The value of such exhibitions can often be increased if the exhibitor has clearly in mind the essential features of a good plate of fruit.

The external factors that must be considered are size, form, color, uniformity, and freedom from blemishes.

The largest apple is not necessarily the best; in fact, great size is usually obtained at the expense of some equally desirable factor. The extra large specimen is always an abnormal specimen, and as such is not to be sought after. It is in regard to this factor, however, that many exhibitors make their first mistake. A safe rule to follow is to select the specimen combining large size with the highest color. This rule will almost invariably eliminate the abnormally large specimen.

The form of the specimen should be true to the prevailing type of the section in which it grows. Occasionally different sections produce different types, as, for example, the New-York-grown and the Oregon-grown Esopus. One is as true to type as the other, but the two types should never be mixed on the same plate or in the same package.

Of all external factors none exceeds in importance the factor of color. High color always sets up in the mind the presumption of excellence; the higher the color is, the more pronounced seems to be the presumption, although it is not always justified. Color is also an indication of fitness, of approaching maturity; but a specimen maturing far in advance of its companions should be regarded with suspicion, lest it harbor a worm that may emerge at a most inopportune moment if it escapes detection. Polishing a specimen in order to enhance its color should not be done. The operation removes the bloom, which is more beautiful than the high polish because it is more natural.

The factor of uniformity implies that one specimen should as nearly resemble every other specimen as it is possible for the human eye and hand to make it. It is a literal application of the expression, "as nearly alike as two peas." A single specimen of the highest order should not be retained for a moment if its companions are on a more nearly equal, though somewhat lower, plane of excellence.

Freedom from blemish implies that the specime[illegible] A blemish may be anything from a bruise, a bro[illegible] puncture, to a scale mark or a scab spot. In an age when knowledge of preventive measures is so widespread and so accessible, evidence of injury from insect or disease should completely exclude a specimen from consideration.

The factor of quality is also worthy of consideration, although it is of more importance in the case of collections in which one variety is pitted against another than in the case of different specimens of the same variety. Granted that size, form, and color are normal, the factor of quality will usually take care of itself.

The following score card for apples is in common use throughout eastern United States :

Size	10
Form	10
Color	20
Uniformity	15
Quality	20
Freedom from blemishes	25

The rules now governing all large exhibitions in the East require that plates of apples, peaches, pears, and quinces shall contain five specimens; of the smaller fruits, a sufficient number to fill a six-inch plate; and of grapes, three clusters.

Fruit to be sent away for exhibition should be carefully packed. A bushel box is a satisfactory package for this purpose, being better than a larger package in which the pressure on the fruit is greater. Each specimen should be wrapped, and the box should be well lined with excelsior or other material. Extra specimens should be included to replace those that may be injured in any way.

In many cases the judging is poorly done because the judge is not sufficiently familiar with a large number of varieties to be sure of his decisions. The department is prepared to send to a limited number of exhibits experienced men to do the judging, on the condition that the local organization pay the actual expense involved in making the trip. The judge may also explain methods of selection, and demonstrate the judging of the fruit at an evening meeting if it is thought desirable.

During November of each year, the department holds a fruit exhibit at the College for the benefit of the students in pomology. It is desirable that fruit be procured from as many different sections of the State as is possible. A number of granges and county associations have cooperated with the department in this work by sending these exhibits to the College after the local exhibitions are over. The department will pay the transportation charges on the fruit, and will set it up as a collection from the local organization if desired. It will appreciate the support of these organizations in this matter and will welcome correspondence in regard to it.

THE NEW APPLE GRADING AND PACKING LAW

The New York State Apple Grading Law went into effect on July 1, 1914. This law is compulsory, and applies to the marks that all closed packages must bear. The only exceptions to the above are :

1. Apples packed and branded in accordance with the United States Law known as the Sulzer Bill.
2. Unpacked apples actually transported in barrels to storage within the State. The act applies to such apples when they shall be removed from storage for the purpose of marketing.

Every person in the State who sells apples should familiarize himself with the provisions of this measure. Copies may be obtained from the Commissioner of Agriculture at Albany, or from the secretary of the International Apple Shippers' Association, Rochester, New York.

Packing and marketing special. In order to demonstrate the provisions of the law and to give a clear understanding of the essentials of packing and marketing apples, demonstrations will be given in special cars to be operated in the fruit-growing districts by the New York Central Railroad in cooperation with the New York State College of Agriculture. Actual demonstrations of the packing of "orchard run" fruit will be made and exhibits of various devices will be displayed. There will also be discussions, illustrated by stereopticon views, on marketing and distribution of fruit.

A representative of the State Department of Agriculture will accompany the cars to explain the policy of the Department in prosecuting violations of this new law.

The Western New York Horticultural Society and the New York State Fruit-Growers' Association will also send representatives to explain why these societies supported this legislation and what it is hoped will be accomplished by it. Every one interested in better packing and better prices for New York State fruit is invited to be present.

Following is the schedule of stops for the cars. The schedule for August 21 to 27 is a provisional schedule only, and minor changes may be necessary. Notice of such changes will be published in ample time in those districts that are affected.

		Meeting
August 21—At Marlborough		9.00 a.m.-12.00 m.
Leave Marlborough, Train No. 7,	1.37 p. m.	
Arrive Ulster Park	2.15 p. m.	2.15-4.30 p. m.
Leave Ulster Park, Train No. 15,	4.39 p. m.	
Arrive Saugerties	5.41 p. m.	7.00-10.00 p. m.
August 22—Leave Saugerties, Train No. 9,	7.08 a. m.	
Arrive Coxsackie	7.54 a. m.	8.30-11.30 a. m.
Leave Coxsackie, Train No. 11,	11.40 a. m.	
Arrive Ravena	11.57 a. m.	1.00- 4.00 p. m.
Leave Ravena	6.44 p. m.	
Arrive Albany	7.20 p. m.	
August 24—Leave Albany, Train No. 66,	5.32 a. m.	
Arrive Schodack Landing	5.52 a. m.	8.30-11.30 a. m.
Leave Schodack Landing, Train No. 56,	11.45 a. m.	
Arrive Stuyvesant	12.02 p. m.	1.00- 4.00 p. m.
Leave Stuyvesant, Train No. 14,	5.24 p. m.	
Arrive Hudson	5.46 p. m.	7.00-10.00 p. m.
August 25—Leave Hudson, Train No. 66,	6.20 a. m.	
Arrive Germantown	6.49 a. m.	9.00 a.m.-12.00 m.
Leave Germantown, Train No. 56,	12.44 p. m.	
Arrive Poughkeepsie	1.50 p. m.	2.00- 5.00 p. m.
Leave Poughkeepsie, some convenient train to make connection at Rochester for train No. 37 for Spencerport, arriving at that station	8.47 a. m.	9.01 a.m.-12.00 m.
August 26—Leave Spencerport, Train No. 41,	12.45 p. m.	
Arrive Brockport	1.02 p. m.	1.30- 4.30 p. m.
Leave Brockport, Train No. 49,	4.43 p. m.	
Arrive Albion	5.22 p. m.	7.00-10.00 p. m.
August 27—Leave Albion, Train No. 37,	9.27 a. m.	
Arrive Medina	9.48 a.m.	10.00 a.m.-1.00 p.m.
Leave Medina, Train No. 41,	1.56 p. m.	
Arrive Lockport	2.35 p. m.	2.45- 5.45 p. m.

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September 7—At Fulton		1.00- 4.00 p. m.
Leave Fulton, Train No. 351,	4.20 p. m.	
Arrive Oswego	4.48 p. m.	7.00-10.00 p. m.
September 8—Leave Oswego, Train No. 66,	6.20 a. m.	
Arrive Hannibal	6.45 a. m.	9.00 a.m.-12.00 m.
Leave Hannibal, Train No. 64,	12.50 p. m.	
Arrive Red Creek	1.20 p. m.	1.30- 5.30 p. m.
Leave Red Creek, Train No. 62,	5.50 p. m.	
Arrive Sodus	6.35 p. m.	7.00-10.00 p. m.
September 9—Leave Sodus, Train No. 66,	7.56 a. m.	
Arrive Williamson	8.07 a. m.	9.00 a.m.-12.00 m..
Leave Williamson, Train No. 64,	2.15 p. m.	
Arrive Webster	2.37 p. m.	2.45- 5.45 p. m.
Leave Webster, Train No. 62,	7.12 p. m.	
September 10—Arrive Hilton, Train No. 54,	9.31 a.m.	12.30- 3.30 p.m.
Leave Hilton, Train No. 56,	3.46 p. m.	
Arrive Morton	4.10 p. m.	7.00-10.00 p. m.
September 11—Leave Morton, Train No. 54,	9.50 a.m.	
Arrive Lyndonville	10.37 a. m.	1.30- 4.30 p. m.
Leave Lyndonville, Train No. 56,	4.58 p. m.	
Arrive Barker	5.14 p. m.	7.00-10.00 p. m.
September 12—Leave Barker, Train No. 52,	7.36 a.m.	
Arrive Burt	7.58 a. m.	8.00-11.00 a. m.
Leave Burt, Train No. 54,	11.09 a. m.	
Arrive Ransomville	11.35 a. m.	1.00- 4.00 p. m

AN AMENDMENT TO THE LAW IN RELATION TO THE SALE OF FRUIT-BEARING TREES

A measure that should prove of interest to every person who purchases fruit trees will become a law on September 1, 1914. It is an amendment to the agricultural law in regard to the sale of fruit-bearing trees. Its essential provisions are as follows :

Every person or firm selling trees from any point in New York State must attach to the shipment a copy of a certificate of inspection by the Department of Agriculture.

A label must be attached to every bundle of fruit-bearing trees, or, if the bundle contains trees of more than one kind or variety, each tree must be labeled.

The purchaser may recover damages sustained by such trees proving untrue to name as specified on the label at any time prior to the third bearing year, provided the purchaser notifies the seller as soon as he has reason to believe the trees are not true to name.

The seller must accompany the shipment with an itemized list of the same, giving the name of the county and State in which the trees were grown and the name and address of the person for whom the trees were grown, if requested by letter or in writing on the contract by the purchaser at the time of purchase. The purchaser must compare the list with the labels, and notify the seller of any discrepancy between them within five days after receipt of the trees.

Any person or firm acting as agent for another in the sale of fruit-bearing trees in the State shall carry, and exhibit on request of the purchaser, a certificate in writing, signed by his principal, showing his authority to act as such agent.

This law relates only to trees grown or shipped at some point in the State of New York. Copies of the law may be obtained from the Commissioner of Agriculture at Albany, and prospective purchasers should become thoroughly familiar with its provisions.

GENERAL ANNOUNCEMENTS

THE GENERAL AGRICULTURAL EXHIBIT FOR TOWN AND COUNTY FAIRS

The Department of Extension Teaching at the College of Agriculture has prepared a general agricultural exhibit which will be available for town and county fairs this fall. This has been prepared for those fairs that demand an exhibit covering more than one particular phase of agriculture. The exhibit covers the following subjects : soils and soil fertility, including charts and materials dealing with drainage, lime, and tillage, illustrating the essential points in productive soils, and treating the question of fertilizers and the maintenance of humus; animal husbandry, illustrating principles of feeding and breeding of animals, and including pictures of various thoroughbred animals and their offspring, and samples of commercial feeds; and farm crops, showing the effect of top-dressing meadows, mixture of good pasture grasses, combinations of good and bad seed, and the effect of fertilizing timothy.

This educational exhibit will be sent to fairs only on request. The local fair associations will be asked to pay one half the cost of the transportation of the exhibit and one half the traveling and hotel expenses of the person in charge of the exhibit. The person accompanying the exhibit will be present to explain it to visitors and to answer any questions pertaining to it. Any requests for this particular exhibit should be made as early as possible, since the number of fairs to which it can be sent is limited.

All communications should be addressed to the Department of Extension Teaching, College of Agriculture, Ithaca, New York.

TIMOTHY CONTEST

The timothy contest which the Department of Plant Breeding, in cooperation with the Farm Bureau, organized in Jefferson county two years ago, will be held in connection with the county fair August 25 to 28. The contest is receiving the hearty support of the local hay-dealers, as well as of the New York State Hay Dealers' Association. While some of the original contestants have dropped out for one reason or another, enough remain to make an interesting competitive exhibit. Each contestant was furnished seed of one of the best Cornell varieties of timothy, and has been increasing it by methods recommended by the College. Each man will exhibit the ten best plants from his breeding plat. Liberal premiums will be awarded to the winners.

In connection with the contest the Department of Plant Breeding will install an exhibit demonstrating methods and results of improving plants by breeding. Members of the department will be in attendance with the exhibits during the fair.

ORCHID COLLECTIONS

Through the kindness of Mr. H. Boyle, the Department of Floriculture has received a valuable collection of orchids, which were collected by him in the Philippine Islands. The collection comprises several genera, including *Phalaenopsis* (the moth orchids), *Dendrobium*, *Cypripedium*, and others. The collection was forwarded through the United States Department of Agriculture and arrived at Ithaca in good condition.

This is the second collection of imported orchids that the Department of Floriculture has received in the last six months. The first collection, received from the Philippines, was donated by Dr. A. R. Ward, with the understanding that should he at any future time decide to erect an orchid house the plants should become his property. This collection comprises thirty-seven genera and many species, and includes very rare plants.

DATES FOR COLLEGE COURSES, 1914-1915

Attention is called to the dates for the college year 1914-1915 :

Regular courses

September 11, Friday, University entrance examinations begin
September 21-22, Monday-Tuesday, Academic year begins; registration of new students
September 23, Wednesday, Registration of old students
September 24, Thursday, Instruction begins in all courses
February 3, Wednesday, First term closes
February 6, Saturday, Second term opens
June 16, Wednesday, Forty-sixth Annual Commencement

Winter courses

November 10, Tuesday, Winter courses open
February 12, Friday, Winter courses close

Farmers' Week

February 8-13, 1915, Eighth Annual Farmers' Week

Announcements of courses of instruction may be obtained on application to the Secretary, College of Agriculture, Ithaca, New York.

READING-COURSE LESSONS

FARMHOUSE AMUSEMENTS FOR GIRLS AND BOYS

One reason that many persons give for seeking the life of the large city is that it gives them greater social opportunities than the country affords; that men and women meet and mingle more than in the country; that more things are "going on" in the city. This desire for social life, felt particularly by young men and women, need not be unsatisfied in the country. Social life should be developed in the country, where every opportunity offers for establishing wholesome, strong relationships.

It is in view of such needs and opportunities that this lesson, No. 65 of the Cornell Reading-Course for the Farm Home, has been written. Two short historical plays are contained in the lesson, so simple in their setting and wording that they may be given by the young persons in any grange or local organization. Producing the plays not only will bring the young persons together through a common interest, but also will encourage them to learn more of the history of their own State and will develop in them the ability to work together.

IMPROVING THE POTATO CROP BY SELECTION

This lesson, No. 68 of the Cornell Reading-Course for the Farm, considers the two methods of breeding, hybridization and selection, in their direct application to the improvement of the potato crop. Hybridization is of no particular use to the busy practical grower of potatoes, since it involves considerable time and labor for the amount of improvement that may be accomplished. There remains for the practical grower a method which has been tried and not found wanting, and which will enable him to increase his yield of potatoes materially without the expenditure of a large amount of time or money. Methods of selection are discussed and results given of experiments conducted by the Department of Plant Breeding, and also by practical potato-growers who are giving close attention to both environment and heredity.

Plans and suggestions are included for the guidance of growers who are ready to begin potato selection.

ANNOUNCER
OF THE
COLLEGE OF AGRICULTURE

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B. T. GALLOWAY, Director A. R. MANN, Editor

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This Announcer is published for the purpose of acquainting the people of the State with the kinds of work that are in progress at the State College of Agriculture. It announces the investigations, extension enterprises on farms and with the people, forthcoming bulletins, reading-courses, local schools, and other events and programs of which the public should have knowledge and which are not announced in the usual publications of the College.

On request, any resident of the State may be placed on the mailing list to receive the Announcer, so far as the size of the editions will allow.

DEPARTMENT OF RURAL ENGINEERING

Owing to the fact that the farm is a small and comparatively isolated unit and farming is a family enterprise, farm engineering must be performed by the farmer, especially in the solution of the lesser, but troublesome, mechanical difficulties. It is the purpose of this department to give the future farmer the engineering skill necessary for such work.

Before presenting the scope of this work it may be well to explain briefly that the student most likely to register for any of its courses is deficient in his knowledge of elementary mathematics and mechanics. Computation is distasteful and difficult, the reasoning powers along mechanical lines are wholly undeveloped, and the work must be at decided variance with much that has preceded in other lines calling for general, not specific, information. Boys from the farm enter the work feeling that they already know almost all that is needed; boys from the city find great difficulty in grasping the essentials because of the multiplicity of detail with which they have had no experience. A severe jolt for the former and careful encouragement and supervision for the latter are essential very early in the work, and it is this variance of need that imposes the severest task on the teacher.

The work now offered consists of the mechanical, civil, and architectural engineering of the farm, and, while a student may take up one or more of these lines, it is urged that he needs all three, since for the most part he must be his own engineer.

FARM MECHANICS

The work in this subject comprises a series of lectures and laboratory experiments covering farm machinery. The plan is to so conduct the work that fundamental principles of mechanics and physics will be vividly impressed on the mind because of their bearing on actual farm processes Among the subjects considered are binders, mowers, pumps, gas engines, and power transmission.

At the outset the student reviews the fundamental facts and definitions that he must use, such as : force times distance is work, and the rate at which work can be done is power; a moment is the force times the length of its lever arm. Also, definitions of a general nature are given, such as : a pitman is a simple link which transforms rotary to reciprocating motion; a spur gear is a wheel the periphery of which is divided into teeth to mesh with like teeth on a corresponding wheel; a spur gear consisting of twelve or less teeth is a pinion. These definitions are necessary because it is usual to find the student believing that pitmans are devices peculiar to mowing machines only, for the purpose of running the knives, and that pinions are for engaging racks with which to pump gasoline at the garage.

Each machine is then taken up and carefully analyzed, the special adjustments and their purposes being pointed out deductively, inductively, or directly. As to the manner of presenting the subject matter, this may be illustrated by the way in which the grain binder is treated : The power is traced from the whiffletrees to the pitman shaft, the function of each member passed through being either explained or assigned as a problem to be studied; then the processes in order, from the cutting of the stem to the final tying in the bundle, are analyzed. During this analysis the student awakens to the flexibility of this machine and to its wonderful plasticity in the hands of a skillful operator. But it is not sufficient that the student know that these adjustments exist and empirically how to change them; he must know also why the adjustments produce the required results, must take them back to the mechanical and physical fundamentals. Many of the various adjustments studied will be antiquated before the student enters practical work; but the ability to analyze any new mechanism by reduction to a solid and lasting basis will provide for all exigencies that are likely to arise in field or shop.

FARM ENGINEERING

The courses in farm engineering are very popular with the students and the training offered is valuable to farmers in this State, where drainage is an important factor. The work includes field practice with the dumpy and the Y level, the use of homemade levels and rods, and tabulation of data and notes, and enables the student to draw a topographic map suitable for use in designing a farm management or drainage system. The taking of field notes so that they are clear and easily worked into a map is in itself an art of no mean consequence. Care and practice are needed in order to chain accurately, and even more is this true for leveling.

There are three courses in all. The first covers the subjects of plane surveying, chaining, boundary surveying for small areas, topography by cross-sectioning, leveling for cross-sectioning and ditch grading, and calculation of areas by the method of latitudes and departures. This part of the work is strictly elementary. From this the work passes to the consideration of farm sanitation, concrete construction, septic tanks, and various types of filter beds suitable for farm conditions. The second course is based on the first. The high-grade transit is now introduced, and the work is expanded in its scope so as to include large swamp areas and special problems of mapping and drainage. A part of the work is expected to be original research by the student. The third course specializes in drainage and irrigation and is carried on in cooperation with the Department of Soil Technology. For this work the student must complete the two courses mentioned above, so as to be thoroughly familiar with the instruments and methods of work. Not only large drainage projects for this State, but also the systems of Western irrigation tracts, are studied. Problems are given involving the measurement of water in weirs, and to aid in this a weir has been installed at the outlet of a drainage system located on the college farm. In these courses trips are occasionally made by students to do actual work for farmers, the expense being shared by the three parties involved—department, student, and farmer—and the plans being worked up under departmental supervision.

FARM STRUCTURES

In order that a building may be well designed it is necessary, first, that its layout be proper for the purpose which it is to serve, and, second, that the materials be suitable and in members of proper proportions. In the early days, when trees were a curse and labor was cheap, vast timbers were hewn and their strength was sacrificed by numerous mortises and tenons and all kinds of insert joinery. This was economically correct, as the beams after framing was complete were still of strength much in excess of the needs. The workmanship involved was of a high order; some of the fitting, considering the tools used, was little less than marvelous. But that has passed away. Building material and skilled labor are costly, and the farmer's time is so precious that it must not be wasted in superfluous steps. The oldtime barn exhibits little thought as to economy of labor, and sanitation was of course unknown; the modern barn localizes effort, and construction must not thwart convenience.

The work in farm structure as now given comprises two distinct lines of study: one, the arrangement of the building to secure convenience of work, sanitation, proper storage facilities, and a pleasing appearance; the other, to determine the details of construction necessary to make the conception a reality.

The work commences by considering and reviewing a few principles of arrangement, and a simple design to meet certain fixed requirements is made and criticized. To illustrate: Let it be supposed that a farm has need of a barn to accommodate six horses, a buggy, a wagon, harness, and feed sufficient to last from one year's harvest to the next. These are the questions that a student must answer: How much [illegible] eded for these horses during the year? How large a space [illegible] grain occupy and how large must the bin be in order to furnish this space since it cannot be filled completely full? How large a loft will be needed for that quantity of hay, and how will this loft be filled? What stalls are needed and what space must they occupy?

The data for all the computation work are furnished in lecture, also specific instructions regarding the method of planning. Yet the work requires serious thought. The beginner instinctively commences his sketch by drawing a rectangular figure and trying to divide it up into stalls and bins, and this procedure is certain to lead to difficulty in dividing the space. He soon learns that by commencing with a center alley and arranging stalls and bins along it leaving places for branch alleys and drives and also clearance in the rear of the stalls, and then inclosing the figure with a line representing the outside wall, he quickly gets a logical solution. But it takes practice and time to plan for specific conditions and get a thoroughly satisfactory result.

On completion of the computations, ground plans are sketched on coordinate paper, and when approved one of the several plans submitted is chosen for complete development. The development of the chosen design consists of a preliminary sketch, carefully worked to scale, involving the ground plan and two elevations; its purpose is solely to crystallize the student's ideas and give him skill in drafting and an opportunity to exercise his artistic taste. On completion of this sketch, drawing of the working plan commences, and for the technique required here the other line of the course mentioned above comes into play. As in farm mechanics, the nomenclature necessary is presented at the first. Wood, stone, brick, and concrete are discussed briefly with respect to their characteristics as building materials, and the determinations of the proper sizes for beams columns, and struts are made by direct mechanical analysis and substitution of the values obtained in formulae. The expressions for the strength of simple end-supported beams and the cantilever are developed and the student is expected to be able to reproduce them; otherwise all formulae are given empirically and the student is cautioned as to their limitations and use. The effect of wind pressure is very carefully considered and great stress is laid on methods of determining it. Details of construction are not given in lecture, these being developed in the drafting room. Ventilation is considered briefly.

The course in farm structures does not include residence or poultry-house construction, and working plans of only one barn can be made by a student in the short time available.

EXTENSION WORK

For the farmer this department offers special assistance in sewage disposal farm power and water installations special problems in irrigation and drainage engineering, and farm buildings.

Plans for farm buildings are prepared as follows: A preliminary sketch is made up from the data sent in, and returned to the applicant for consideration. In many cases this is sufficient if placed in the hands of an intelligent, honest workman. If, howe[illegible] ing is of considerable size, working plans are prepare[illegible] being charged a sum just sufficient to cover the cost of drafting; the supervision of the drafting and designing is done without charge. Since the work is strictly for educational purposes, no plans are prepared for a man who has already designed his barn and simply desires the services of the department in drafting because they are free. These plans are supposed to be an advance in farm building construction, and are for the purpose of disseminating useful information; therefore they will not incorporate constructions of which the department disapproves simply because some one wants them that way and is willing to pay for the drafting.

Where it seems advisable an expert will visit a farm for the purpose of determining the conditions to be met; the cost of this is divided equally between the department and the farmer.

GENERAL ANNOUNCEMENTS

HAY IN NEW YORK STATE

Never before has there been so much popular demand for and need of, the improvement of meadows and pastures as there is at present in New York State. According to figures taken from the latest United States Census Reports, this State ranks first in value of total hay and forage produced, and second only to Iowa in acreage and production of these crops. The average annual value of hay and forage in New York State is approximately $77,360,000. In fact the most valuable single plant in the State is timothy, and this ranks second only to corn in the United States. Approximately one sixth of New York State, or one third of its total improved land, is devoted to hay and forage, and in New York this implies timothy and clover mainly in the form of meadow seeding.

The Department of Farm Crops of the College of Agriculture has been, and is now, making a study of the economic use of commercial fertilizers and manure as top-dressing for meadows, as affecting both the yield of hay and the yields of succeeding crops. Whereas yields of 3 tons of hay per acre are not unusual, the average acre yield for the United States is only 1.35 ton and for New York State 1.4 ton. Low yields in this State are due mainly to lack of attention to fertilization, poor seed, and acid soils—all due in turn to the concentration of attention on cultivated crops rather than on hay. Regardless of this, hay is practically the only large crop that has consistently shown a net profit per acre.

The New York State College of Agriculture, through the agency of the Department of Farm Crops, has arranged an exhibit of material consisting of both specimen frames and data charts demonstrating the results obtained in top-dressing timothy meadows with various combinations of fertilizers on the college farms. Besides this the exhibit includes material relative to time of cutting, yields, depth of root system, feeding value distribution in New York State, and methods of inoculation of alfalfa; typical rate of seeding of grasses and clover for meadows and pastures on both good and poor land, with frame specimens of each; and data showing the present rank of New York in relation to other States in some of our most important crops.

Representatives from the College will accompany the exhibit to various agricultural fairs, both state and county, to answer questions and to discuss the various practices and recommendations concerning each crop.

THE CORNELL RURAL SCHOOL LEAFLET FOR SEPTEMBER

During the month of September the teachers' number of the Cornell Rural School Leaflet will be distributed. This number contains subject matter on the work for the year in nature study and elementary agriculture, following the topics outlined by the New York State Syllabus. The scientific material has been prepared by specialists in the different subjects, and is accompanied with pedagogical notes and supplementary articles of a general character. The leaflet comprises two hundred and seventy-six pages and is fully illustrated.

This number of the Cornell Rural School Leaflet is available to all elementary teachers in the State of New York and reaches them without personal application. In the case of teachers under rural supervision, copies are sent to them individually in accordance with lists of names received from the district superintendents of schools at the beginning of the school year. In the case of elementary teachers under the supervision of city and village superintendents, copies are distributed through the office of the superintendent; in the schools of New York City, copies are distributed by the superintendent of school supplies.

The leaflet contains a blank, to be used by teachers under rural supervision in sending to the College the names of their pupils. During the year there will be published three smaller leaflets for boys and girls, which will be distributed to the teachers who return the blanks properly filled out.

The work in nature study and elementary agriculture is rapidly becoming a very definite part of the school curriculum in this State. Last year sixty-three per cent of the teachers under rural supervision were receiving the leaflets for boys and girls, making a total of one hundred and seventy-two thousand children on the mailing list.

For further information regarding the nature and method of dis-[illegible] the Cornell Rural School Leaflet, teachers should apply [illegible] superintendent of schools, through whom, directly or indirectly, the leaflet is distributed. Inquiries sent to the College should be addressed to Cornell Rural School Leaflet, Department of Rural Education, College of Agriculture, Ithaca, New York.

FARM BUREAU CIRCULARS

There has just been issued from the Office of the State Director of Farm Bureaus, at the College of Agriculture, Farm Bureau Circular No. 4, entitled, "Jefferson County: An Account of its Agriculture and of its Farm Bureau." This is the second of a series that will describe the agricultural conditions and the farm bureau work in each New York county that has a farm bureau The circular furnishes, in a concise way, accurate information about the agricultural conditions in the county, and shows how the farm bureau is working to develop the agricultural resources of the county. While the circular is issued chiefly for the residents of Jefferson county and persons especially interested in that region, a limited supply is available for outside distribution.

CONCERNING THE SUPERVISION OF ADVANCED REGISTRY RECORDS

(Extension Circular No. 5)

From very small beginnings—the records of about twenty cows were supervised in 1894—the work of supervising records of dairy cows has continually increased, until in the year 1913-1914 the records of nearly four thousand cows, belonging to six different breeds, were supervised. This has taxed to the utmost the facilities of the Department of Animal Husbandry of the New York State College of Agriculture, which has the work in charge. In order to meet the constantly increasing demands, it has been found necessary to increase the pay of the supervisors and to make corresponding changes in the charges made to owners, and also to so systematize the work as to get a maximum of service from a minimum of effort. In this circular are given in a brief way the history of the Babcock test, directions for making application for supervisors, rules for the supervision of official tests, and the schedule of charges for this work. The circular may be obtained on application to the Department of Animal Husbandry, College of Agriculture, Ithaca, New York.

EXTENSION SCHOOLS

Arrangements are now being made for the extension schools in agriculture and home economics that are to be held next winter in various parts of the State. These schools will be of five days duration, beginning Monday morning and closing Friday night. The work is conducted by members of the extension staff of the New York State College of Agriculture, and instruction will be given in two or three subjects most important in the locality where the school is held. The day sessions will be devoted to regular class work, including lectures, discussions, and practice periods. Popular lectures may be given in the evening. Extension schools will be held each week from December 1 to April 1, with the exception of Christmas week and Farmers' Week.

The following list will give an idea of the courses offered: animal husbandry, agricultural chemistry, entomology, farm crops, fruit-growing, farm accounting, farm mechanics, home economics, plant pathology, poultry husbandry, soils, vegetable gardening. Other special subjects will be taught whenever possible.

EXPERIMENT STATION PUBLICATIONS

BULLETIN 346—THE TARNISHED PLANT-BUG

The tarnished plant-bug is a serious enemy of peach nursery stock in New York State. It is also injurious to asters and causes serious loss where this plant is grown for seed. The bulletin here considered is a résumé of the existing knowledge of the insect, and gives an account of the injuries that it causes to its various food-plants. Its life history and habits are described, and a series of experiments in the control of the insect on peach nursery stock is recorded.

The authors have thus far been unable to devise any method of either destroying the insects or preventing their injury to peach nursery stock. Since the flights of the insect are short and low, the trees might be protected from their attacks by placing a wire-cloth fence about six feet in height around a block of trees, and smearing a narrow strip of "tree tanglefoot" along the top of this in order to prevent the insects from crawling over. The cost of such a fence would not be prohibitive. It is suggested that the trees may be assisted in outgrowing the injury by pruning after the tip has been stung, so as to throw the growth into one of the healthy laterals near the top. Also the tips of the trees might be protected by inclosing them in paper bags during the period of greatest activity of the insects.

Where peach stock is grown on soil best adapted to it, and when it receives the proper cultivation at the proper time, the trees are more likely to outgrow the injury. The trees are less likely to overcome the injury when they do not receive the proper amount of moisture, either through lack of rainfall or because of poorly drained land.

At the end of the bulletin is a list of all the articles that the authors have been able to find relating to the tarnished plant-bug.

BULLETIN 347—ENDOTHIA CANKER OF CHESTNUT

This bulletin treats extensively of the widespread disease of the chestnut commonly known as the blight, or bark disease. The various features of the disease—its hosts, symptoms, cause, and control—are treated fully. Each phase is viewed from an historical standpoint, the authors' observations and experiments are then recorded, and a general summary of the work bearing on each part follows. The manner and time of distribution of the spores of the causal fungus, manner of infection of the trees, influence of weather conditions, and life history of the fungus, are points discussed which are of particular interest to those who wish to attempt the control of the disease. The extensive control measures that have been attempted are discussed, and directions are given for the treatment of shade and ornamental trees. A complete list of the important literature of the subject is appended showing the sources of the information used in the bulletin.

BULLETIN 348—A BIBLIOGRAPHY OF THE WRITINGS OF PROFESSOR MARK VERNON SLINGERLAND

Professor Slingerland was well known to the farmers and fruit-growers of New York State, through his contributions to agricultural papers and his bulletins on entomology. Among scientific workers he held an international reputation and one of his most important bulletins has been translated into the Russian language. The list comprised in this bulletin contains more than seven hundred and fifty titles, of which all except two or three treat of injurious insects and plant diseases.

BULLETIN 349—SOME IMPORTANT FACTORS FOR SUCCESS IN GENERAL FARMING AND IN DAIRY FARMING

For eight years the Department of Farm Management at the New York State College of Agriculture has been studying farms in order to learn why some farms pay better than others. Records have been obtained for 2743 farms in different parts of New York State. Similar work has been done in fourteen other States. So far as the work in other States has been published and so far as the writer has heard it discussed in lectures, the same principles are shown to apply. The conclusions reached are, in brief, as follows :

While there are other important factors for success in farming, on the great majority of farms the area in crops, the yield of these crops, the returns per animal, and the diversity of the business are the most important factors. On dairy farms there is no factor more important than the receipts per cow. In the three counties studied—Tompkins, Livingston, and Jefferson—the cows must be about a half better than the average if they are to contribute to the success of the farm.

A well-balanced combination of cash crops and live-stock usually pays better than does either extreme. The best combination varies with the amount of money that the farmer has, with the quality of the live-stock kept, and with the profits that come from crops Even with very profitable live-stock it nearly always pays to have some [illegible] be three or four important products [illegible]ts, no one of which is neglected because of the others.

Certain factors often prevent the profits from rising as high as they might go if the entire business were well balanced The wrong kind of farming is sometimes followed. Inconvenient buildings, a poorly-laid-out farm, or failure to plan the work ahead, may lose time. There may be too much or too little equipment. Occasionally too much money is invested in buildings or too many horses are kept, or any one of many other factors may be wrong. But in the great majority of cases, if the four factors here emphasized are good the other mistakes made by experienced farmers are not sufficient to prevent at least a fair profit.

CIRCULAR NO. 23—OUTLINE OF THE FUNCTION AND USE OF COMMERCIAL FERTILIZERS

This is a brief publication of seven pages, giving some of the fundamental facts that determine the selection and use of commercial fertilizers. It states the quantity of the more important elements of plant-food removed by several types of crops grown extensively in New York, and the quantity of the same elements found in the average soil. These facts show the importance of conditions that make plant-food available in the soil—those conditions being enumerated.

The function of fertilizers is stated to be to make up deficiency, either in total amount or in availability, of any of the plant-food elements.

A table shows the composition of thirty-four materials used as fertilizer. The provisions for state inspection, with which every farmer should be familiar, are briefly explained. The method of calculating the composition of fertilizers for home mixing is shown, and some general rules for the use of commercial fertilizers on different soils and crops are given.

CIRCULAR NO. 24—SOME SUGGESTIONS FOR CITY PERSONS WHO DESIRE TO FARM

This circular is prepared with a view to offering a few suggestions to the considerable number of inexperienced persons who are making farm investments. For a number of years large numbers of such persons have been writing to the College of Agriculture for advice. It is not often possible, in the limits of a letter, to fully answer the questions asked, nor is it possible in a circular, but a few of the more common questions and mistakes may be discussed. It is not the purpose of the circular to persuade any one to farm or not to farm. The aim is to give a better understanding of what may be expected from a farm, and to suggest the safer ways of procedure for those who are starting farming. The facts presented are based on records of large numbers of farms.

The points taken up are discussed fully under the following heads : profits to be expected in farming; how big a business is a farm; farming a slow business; cost of living on farms; a farm a home enterprise; first learn the business; selecting a farm; large crops do not necessarily pay; correct types of farming; over-investment in buildings and machinery; raise crops first; learn from the neighbors; starting as a young man without capital; farming for middle-aged persons; the farm as a home; large farms and corporation farming.

Discussing the cost of living on farms, the author points out that, while approximately half of the food of farm families is furnished by the farm at a cost much below what it costs in cities, the food that is purchased usually costs as much as, or more than, it does in cities. City water rent is very much cheaper than the cost of furnishing running water in the house on most farms. Light is cheaper in cities unless the farmer uses kerosene lamps. High school education is often very expensive for farm children, because it is often necessary for the children to leave home and pay board, or a horse may have to be kept for the children to drive to school and this is very expensive even on a farm. The fact that food and house are cheaper on the farm makes the farm most attractive for persons with large families and small means, because such persons spend most of their money for food; but persons who have an income so large that food is not the chief item in the cost of living are likely to be disappointed in their expectations of a greatly reduced cost of living on farms.

As to farming for middle-aged persons, the author states that a decided change in business is always a hazardous undertaking for any but young men. The man who knows nothing about farming and who has a family to support should be very cautious about leaving good wages in a city and going to farming. Such changes have been made with great success, but there have also been many severe disappointments. If a middle-aged person has never learned to do manual labor, the change is still more difficult. If the members of such a family are very sure that they desire to go to farming, it is safer, if possible, to rent a small place in the country and continue with the city occupation. Some chickens and a cow can be kept, and a garden raised. The family can do most of this work. The small enterprises can be increased, and, if successful after a few years, it may be safe to leave the city work and go to farming. There are thousands of persons who live on farms and who continue with their city occupation. Living on a small place enables one to raise milk, vegetables, eggs, and fruit for home use, and often some for sale. This greatly reduces the cost of living. It also gives opportunity to provide useful and wholesome work, which is such a vital part of the training of children.

CIRCULAR NO. 25—OUTLINE OF THE RELATION OF THE USE OF LIME TO THE IMPROVEMENT OF THE SOIL

This circular explains briefly the scientific basis for the use of lime on the soil, and enumerates its chief effects on the soil and on plants. While the presence of a moderate quantity of free lime is especially important for the growth of many plants that aid in the maintenance of the fertility of the soil, there are also many plants that thrive as well, or better, in the absence of free lime in the soil. These relations for a few common plants are shown by a diagram.

The composition, physical characters, and important points to be observed in the use of all the more common forms of lime, are given. A table is presented showing the amount of calcium and magnesium n a number of common fertilizer materials. Some general rules for he selection and use of lime are included.

The bulletins and circulars described above may be obtained on application to the Mailing Room, College of Agriculture, Ithaca, New York.

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